FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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AFMA and NEPPCO Groups to Discuss Financing, Contracting

CHICAGO — A committee composed of directors of the American Feed Manufacturers Assn. and the Northeastern Poultry Producers Council will meet in Washington, D.C., Jan. 19, 1960, to study marketing, financing, contracting, and other aspects of the poultry industry that have posed serious problems for poultrymen and feed men alike.

Named to the committee by NEPPCO were: Carroll Dunham, a market egg producer of Southbury, Connecticut; Robert Thurrell, hatcheryman from E. Wolfeboro, New Hampshire; and Richard Gibson, broiler grower from Federalsburg, Md.

Committee members named by AFMA include: Dr. John C. Hammond, vice president and treasurer, O. A. Newton & Son Co., Bridgeville, Del.; Dr. Paul E. Newman, executive vice president, the Beacon Milling Co., division of Spencer Kellogg & Sons, Inc., Cayuga, N.Y.; and J. D. Sykes, vice president, Ralston Purina Co., St. Louis, Mo.

The chairman of the board and the president of AFMA as well as the president and the executive secretary of NEPPCO will serve on the committee in ex-officio capacity.

This joint study committee was originated by the NEPPCO board of directors in a telegram to the AFMA board last October. It was immediately and unanimously accepted. Since then the staffs of the two organizations have collaborated on the

(Turn to AFMA, NEPPCO, page 81)

Damon Catron Accepts Feed Industry Post

ATLANTIC, IOWA—Dr. Damon V. Catron, widely known for his swine nutrition and management work, has accepted the position of vice president in charge of research and marketing with Walnut Grove Products Co., Inc., which has general offices in Atlantic.

Damon Catron

J. J. O'Connor, president of the feed manufacturing firm, announced this week that Dr. Catron, professor of animal nutrition and in charge of swine nutrition research at Iowa State University, will join Walnut Grove May 1.

Dr. Catron, who joined Iowa State in 1945, has directed more than 480 swine nutrition experiments, involving more than 34,000 animals. He

(Turn to DR. CATRON, page 81)

Turkey Meeting Reflects Optimistic Industry View

By Feedstuffs Staff

MINNEAPOLIS — Buoyed by the turkey price spurt late in 1959, turkey growers and allied tradesmen were riding a wave of optimism as they gathered here this week for the National Turkey Federation's 1960 convention and exposition.

There weren't a lot of people standing around trying to prick holes in the bubbles of optimism, but there were some words of caution to the effect that 1960 probably will not be so favorable as many in the industry expect or hope.

Whether excessively optimistic or not, nearly 6,000 persons were on hand for the big meeting and show Jan. 5-7 at the Minneapolis auditorium. Even the sub-zero cold outside wasn't enough to offset the warmth generated inside.

(Also see other NTF stories on page 6.)

The NTF convention program focused attention on needs for continuing improvements in merchandising and in production efficiency if the turkey industry is to go forward.

Some of the talks also underscored the trends toward larger units, lower margins and further increases in integration or coordination.

Growers also had an opportunity to see and learn what's new in services and supplies through some 175 exhibits which filled two floors of the auditorium.

Breeders Sold

There were reports that a lot of birds being held for breeding were sold when the market jumped several cents late in the year, contributing to a shortage of hatching eggs. Disease problems also were mentioned. At any rate, some persons said this situation will help hold down the 1960 turkey crop and keep prices at a good level. Reduced storage stocks also were noted.

Others discounted this view and said that while there may not be enough hatching eggs and poults to meet the strong demand now, there will be an ample supply of poults later and 1960 production still is likely to exceed the record 1959 crop of 82 million birds. "They always can get the poults somewhere," one observer said, as a result of hatching

(Turn to NTF MEETING, page 86)

Human Health Aspects of Ag Chemicals 'Explored' at Minnesota State Session

By GEORGE L. GATES
Editor of Feedstuffs

ST. PAUL—The use of chemicals in agriculture as they relate to human health was the subject of an "exploratory" session conducted by the Minnesota Commission on Agricultural Problems Jan. 7 at the state capitol.

Feed additives entered the discussion, although a larger portion of the testimony dealt with insecticides and the problems of controlling residues of these products. Witnesses included physicians and a number of other scientists. Earl H. Hanson, Archer-Daniels-Midland Co., presented a statement as a representative of the American Feed Manufacturers Assn.

State Sen. Peter Holland, Austin, vice chairman of the committee who presided in the absence of the commission chairman, Rep. Alvin Hofstad, Madison, explained at the start of the meeting that it was called because of the commission's concern about health aspects of agricultural chemicals and also because of risks of possible losses of markets for agricultural products.

He described the meeting as exploratory and indicated that if further study is to be conducted a subcommittee possibly will be appointed. Sen. Holland pointed out that the commission recognized the great im-

(Turn to AG CHEMICALS, page 8)

President's Talk Seen as Having Deflating Effect on Commodities

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Broad consensus here in most quarters is that the State of the Union message of the President is deflationary on virtually all commodities except the Cinderella crop of soybeans, where the initiative still seems to be in the hands of the bean farmers.

Basic opinion rests in the President's comment that the budget will be about $79.8 billion, down about $1.2 billion from an earlier estimate of the Bureau of the Budget director who forecast an $81 billion level. At the same time, interpolating in his prepared address, the President stated that the 1961 fiscal year budget would show a Treasury surplus of about $4.2 billion.

The smaller budget expressed by the President in his statement to Congress has been described as largely coming from budget requirements of the U.S. Department of Agriculture.

USDA officials doubt, from a budget viewpoint, that such a saving can be accomplished, but they say that if they are given administrative latitude, they might be able to make a good showing. Most of the USDA budget is mandatory under laws previously enacted by Congress.

But USDA still has latitude and this bodes no good for such industries as grain storage and other service activities wherein USDA can make a cost reduction showing.

Point of Attack

There is a growing feeling here that the Uniform Grain Storage Agreement has been refined to a

(Turn to COMMODITIES, page 8)

Displeasure Grows Over Suggested Storage Pact Changes

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Information drifting in from trade sources indicates a mounting displeasure with the suggested changes in the Uniform Grain Storage Agreement as presented to the trade here last month.

Epitomizing the criticism of these proposed changes is the comment of a responsible warehouse industry spokesman, who says that if such provisions should be incorporated in a new UGSA, no responsible grain warehouseman could possibly sign up for government storage.

Another source, after a thorough examination of the document, reports that the new material the U.S. Department of Agriculture would add and the changes contemplated from the old agreement "represent handling and storage conditions which amount to a palladium setting for a Tiffany diamond." This critic has heretofore criticized previous UGSA documents as providing unnecessary requirements for storing U.S. grain surpluses over and above normal trade requirements, unnecessarily adding to the annual storage bill.

Add to Storage Bill

These new refinements USDA now proposes would add considerably to

(Turn to GRAIN STORAGE, page 81)

FEEDSTUFFS *Features This Week*

DRUG REGULATION—The commissioner of food and drugs discusses problems in use of chemicals in production of livestock. **Page 14.**

PELLETING—Research information and comments on feed pelleting and its effects on micro-ingredients will be found on **page 18.**

CUSTOM MILL—A new custom mill in Virginia grinds on an appointment basis. See **page 30.**

RESEARCH—Papers presented at the Animal Nutrition Research Council meeting appear on **page 38.**

LIVESTOCK INTEGRATION—A leading Iowa swine producer says the midwestern farmer can compete against integration and "bigness." **Page 50.**

VETERINARIAN RELATIONSHIPS—Feed men's comments on the problem of relationships between the industry and veterinarians are summarized on **page 60.**

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Top of the Hopper

IT ISN'T KNOWN AT THIS TIME whether the Minnesota Commission on Agricultural Problems will delve further into the question of possible health hazards in use of agricultural chemicals. The session in St. Paul this week, reported elsewhere in this issue, may have convinced the legislators who make up the commission that sufficient control is being applied at the federal level to make further consideration of new state regulations unnecessary. Much of the testimony presented at the hearing indicated that federal legislation and regulation is extensive in this field, as feed men will readily acknowledge.

The difficulties that the feed and food industries would face if additional regulatory laws on feed additives get on state statute books, possibly in conflict with federal laws, would be considerable.

The hearing was conducted in a calm and almost studious manner, and much that was said—and the manner in which it was said—could be credited with helping the commission get a view with proper perspective of the use of agricultural chemicals.

THE RECENT PRICE, CREDIT and other problems in the poultry industry have brought renewed discussions of both short-term and long-term trends in the industry. While they do not look for a wide scale backing away from integrated systems of operations, some think that there will be a check on this sort of thing and that there may be at least some return to production operations of a more independent nature.

A NUMBER OF INDUSTRY NUTRITIONISTS have reported recently that good responses have been obtained from higher than normal vitamin A levels in beef cattle feeds. Some say there is a good possibility that recommended vitamin A levels may be lower than actual optimum levels. Various factors in this reported situation are mentioned, including indications that efficiency of conversion of carotene in forage to vitamin A is less than previously believed. Some nutritionists also raise the point that if higher vitamin A levels in beef cattle feed are desirable, there may be something to be learned about vitamin A levels in rations for dairy cattle.

ALL OF THE RECENT CONVERSATION and warnings about the use of medicated feeds right up to marketing of birds or animals apparently had a quick reaction. Many feed companies are making sure that there are non-medicated finisher feeds available for use when certain medicated feeds are to be withdrawn for a specified period prior to marketing.

THE PROBLEM OF RELATIVELY HIGH condemnations of broilers by government inspectors has received a good deal of attention recently. Many persons have been strongly urging greater attention to basic management practices in an effort to cut down on condemnations. At the same time, some say that part of the problem may be a tendency among some operators to use a lower quality feed than formerly.

THE RESULTS OF THE 1959 Census of Agriculture no doubt will be the subject of a lot of conversation, including politically inspired comments. The Census Bureau has a new definition of a farm. It is this: A farm must have 10 or more acres with agricultural sales of $50 or more per year. Or if it is less than 10 acres, it must have minimum sales of $250 a year.

(Turn to TOP OF THE HOPPER, page 81)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

There was no consistent trend evident in this week's formula feeding business, considering the nation as a whole. In some areas January opened the new year with business up to or above December's level, but in others feed sales volume was slower than that seen in the month before. It is hoped that temperature drops and snow cover will improve the outlook. The most optimistic reports came from the south central area, the Northeast and the Pacific Northwest. It is generally felt that business during the first couple of weeks in January will be better than later in the month. Feed markets during the week ended Jan. 5 were described as only fair and prices were mixed. Buying interest was largely confined to nearby needs of the trade. Broiler producers were reported to be continuing a downward adjustment in production. The U.S. Department of Agriculture said the index number of wholesale feedstuffs prices was 82 this week compared with 82 the previous week and 92.9 a year earlier. The week's feed grain index of 65.1 was 8.3 points above a week earlier and 8.9 points above a year ago. The hog-corn ratio slipped still more. Based on Chicago prices, the ratio was 10.4 this week compared with 10.5 the week before and 15.3 a year earlier. (Feed markets in detail on pages 82-84.)

Northwest

A mixed feed market was apparent in the Northwest this week. The year started out very well for some, while for others 1960 got off to a poor start.

The optimistic ones expect January to be a good month—nothing spectacular, but good. One manufacturer noted that salesmen and dealers expect January's volume to be up with the company's December business, which turned out to be quite good after a slow start.

A dimmer view taken by another representative noted that January's initial business is a letdown from a good December. He said the drop off probably was due to the ending of a 90-day booking contest with emphasis on dairy and cattle feeds.

Ingredient trading was described as only fair during the week. Offerings of some major ingredients were plentiful enough to easily satisfy the narrow demand, while other items were short and prices firm.

There was not enough price change in ingredients to indicate an adjustment in manufactured feed tags.

Southwest

Formula feed business in the Southwest is a little improved this week over the past week with most mills getting a good 5-day run. If the mills were pushed, however, they could turn out more feed in the same period.

It is hoped that the cold weather and snow which was received all throughout the Southwest will give more of a push to cattle feed business, although that line of feed is generally providing the best volume of any line at the present time.

Hog supplement and egg laying rations are moving fairly well and the demand for broiler feeds is somewhat improved.

Mills have no heavy backlog of orders and any increase in business could be easily handled. Dealers are replenishing stocks but are not building up supplies.

Since the grain and ingredient prices in the area have been relatively stable this past week, price lists will be changed very little, if any.

Northeast

Feed manufacturers put in a five-day week for the first time in many weeks as the traditional January upturn got underway. The outlook for the next two weeks is good but beyond that it is cloudy. Some of the increase in sales was attributed to consumers who waited until the new calendar year before adding to their inventories.

The time is nearing for a change in the formula feed sales pattern. Complete dairy feeds should be coming into demand around the end of this month. And starting and broiler feeds should begin to pick up. But in the latest week, dairy feeds to mix on the farm and egg mashes were the sales leaders.

End products were a little mixed. Milk prices are 10¢ cwt. above a year ago. Eggs were off slightly from the preceding week. Broilers remained unchanged, although the range between the high and low prices is spreading between various sections of the country.

The ingredient market was generally a little stronger. Grains were firm on light offerings.

Southeast

Feed business in the Southeast continues to improve each week. Mills report their running time as being at about 75% of capacity.

The north Georgia broiler market is off 2½@3¼¢ lb. and sales are being made from 13½@15¢ lb., f.o.b. the farms, with no profit to the producer.

Chick placements for the week ending Dec. 26 were off close to 800,000 birds from the previous week in Georgia and many believe that there will be a continued cut-back on placements, hoping for price improvement.

Fairly good buying of cottonseed meal and soybean meal has caused prices to increase $1 ton in the Mississippi Valley, but feed ingredient buyers are continuing to buy about a 30-day supply of their major proteins.

With fairly good buying interest and with fewer offerings, corn prices advanced 2¢ bu., making the delivered price between $1.30 and $1.32 bu. at most southeastern points.

Production of citrus pulp in Florida continues to increase each week. Prices range anywhere from $30 to $32.50 ton. However, a few distress cars which are loaded have been reported as selling under $30.

Central States

Apparently the feed trade is not yet far enough into the new year to be able to detect any betterment or material change of any kind in the situation.

Compared with weeks immediately preceding, there has been neither any let-down nor any pick-up in demand. The market is moving along on an

(Turn to MARKETS, page 87)

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Spencer Kellogg Profit Off from Year Ago; Better Signs Noted

BUFFALO — Earnings of Spencer Kellogg & Sons, Inc., for the first quarter of the current fiscal year showed an improvement over the fourth quarter of the previous year but a decline from earnings in the first quarter a year earlier.

Howard Kellogg, Jr., chairman of the board, noted that the company's feed divisions have continued to be hampered by depressed farm prices, although there are hopeful signs in this area.

He also mentioned that "the overall capacity of our feed divisions is being increased bit by bit as a result of further leasing operations throughout the territory served by our mills."

Mr. Kellogg said that improved earnings in the first quarter this fiscal year as compared with the fourth quarter last year can be attributed in part to better margins on oilseed crushing.

The Spencer Kellogg report for the first quarter ending Nov. 28, 1959, showed net sales of $29,428,669, compared with $32,748,565 a year earlier. Net profit after taxes was $290,578, compared with $454,763 in the first quarter in 1958.

Looking ahead, Mr. Kellogg said there already were signs of improvement as compared with first quarter performance. These included higher prices on certain poultry products and on soybean meal.

The feed divisions of Spencer Kellogg are the Beacon Milling Co., Cayuga, N.Y., and the Professional Feeds Division, Kansas City.

Mr. Kellogg's statement follows:

"Earnings: The first quarter of our fiscal year showed an improvement as compared with the fourth quarter, but a slight decline versus the first quarter, a year ago. The former can be attributed in part to a better margin of profit on the crushing of both soybeans and flaxseed. Our feed divisions continue to be hampered by depressed farm prices, although there are some hopeful signs appearing in the latter such as better broiler prices and better than anticipated turkey prices.

"Operations: Our soybean crushing will again break a new record for volume this year following the good start made in the first quarter. Sometime after the first of the year our plant modernization will be completed at Des Moines. As a consequence, the total company soybean crushing capacity will be increased by 15%.

"Flaxseed crushing will be curtailed by a slight amount over the fiscal year, following a drastic reduction in flaxseed production this last fall. This will not impede our efficiency as we have done a better job of programming the available seed.

"The overall capacity of our feed divisions is being increased bit by bit as a result of further leasing op-

(Turn to SPENCER KELLOGG, page 81)

$300,000 Fire Hits Kansas Feed Yards

EMPORIA, KANSAS—Fire caused an estimated $300,000 damage, destroying three large stock barns and killing about 200 animals in a cattle feeding area along the Santa Fe railroad main line west of here this week.

The property, the former Santa Fe stockyards area, was purchased in September by Bluestem Feed Lots, Inc.

A metal building used for feed storage and a feed elevator were the only structures in the main fire area that were saved. Stockyards to the west and north were largely undamaged. Between 4,000-5,000 animals were driven to safety.

Cause of the fire was not determined.

Broiler, Turkey Feeding Ratios Most Favorable Nov. 15-Dec. 15

WASHINGTON—Lower prices for hogs, beef cattle, eggs and milk and higher prices for broilers and turkeys showed up in the Crop Reporting Board's study of farm commodity-feed price ratios based on Dec. 15 data.

Commodity-feed ratios as of Dec. 15 were above those of a month earlier for farm chicken growers, broiler producers, turkey growers and butterfat producers. On the down side were hog-corn, egg-feed and milk-feed ratios.

The report on agricultural prices from the U.S. Department of Agriculture indicates that the month which ended Dec. 15 was better for broiler producers than many months before. During the latest reporting period, 3.8 lb. of broiler grower mash were equal in value to 1 lb. of live broiler. That's .6 lb. greater than for the month ended Nov. 15 and .7 lb. greater than for the month which ended Dec. 15, 1958.

The turkey-feed price ratio shot up to 9 Dec. 15 from the 7.5 figure recorded a month earlier, primarily due to the holiday demand for turkey. Although the Dec. 15 ratio was good to turkey producers, it still was below the December, 1948-57, ratio average of 9.3.

USDA said 1.56 lb. concentrate ration were equal in value to 1 lb. milk fat in cream for the month ended Dec. 15. That figure was up .04 lb. from Dec. 15 of last year, and ahead of the December, 1948-57, ratio average of 1.42. The Dec. 15 butterfat-feed ratio of 26.5 was above a month earlier by .5 and substantially ahead of the 1958 December ratio (24.6) and the 1948-57 December average (22.8).

Significant declines were noted in the egg-feed and hog-corn ratios. Nov. 15 to Dec. 15 the egg-feed price ratio dropped from 9.5 to 9.3, which was well below the 11 mark of December, 1958, and the 12.5 average for the Decembers of 1948-57.

December's hog-corn ratio was 11.7, which was a poor showing compared with the 12.4 ratio of a month earlier and the 17.2 ratio of a year earlier. The 1948-57 average for December was 13.3.

Farm Prices Down

The Crop Reporting Board said the index of prices received by farmers dropped nearly 1% (2 points) to 228% of its 1910-14 average during the month ended Dec. 15. The mid-December index was 7% below a year earlier, with the livestock and products index down 12% and the all-crop index up 2%. For 1959 the index averaged 240 compared with 250 in 1958.

(Turn to FEEDING RATIOS, page 81)

Feed; Average Prices Paid by Farmers, U.S., Dec. 15, 1959, With Comparisons

Commodity and unit	Dec. 15, 1958	Nov. 15, 1959	Dec. 15, 1959
	—dollars—		
Alfalfa hay, baled, ton..	30.0	31.1	31.8
Other hay, baled, ton ...	28.3	27.9	28.5
Cottonseed meal, 41%, cwt.	4.04	4.05	4.13
Soybean meal, 44%, cwt.	4.32	4.19	4.19
Bran, cwt.	3.05	2.82	2.85
Middlings, cwt.	3.12	2.95	2.94
Corn meal, cwt.	3.18	3.07	3.06
Scratch grains, cwt.	3.87	3.84	3.83
Laying mash, cwt.	4.45	4.34	4.34
Poultry ration cost, cwt...	3.35	3.31	3.31
Broiler growing mash, cwt.	4.94	4.72	4.67
Turkey growing mash, cwt.	4.81	4.66	4.64
Mixed dairy feed, under 29% protein, cwt.	3.74	3.68	3.71
Mixed dairy feed, 29% and over	4.53	4.44	4.48
Mixed hog feed, 14 to 18%, cwt.	4.15	4.03	4.03
Mixed hog feed, over 29%, cwt.	5.48	5.28	5.25
Cattle feed, 30% and over.	4.46	4.33	4.35
Stock salt, cwt.	1.59	1.61	1.61
	—Index numbers— (1910-14=100)		
Feed, prices paid by farmers	199	195	195

Farm Commodity-Feed Price Ratios

	U.S.	New Eng.	Mid-Atl.	East North Cent.	West North Cent.	South Atl.	East South Cent.	West South Cent.	Mount.	Pac.
CHICKEN-FEED—										
Farm Chickens:										
December, 1959	3.1	3.5	3.7	3.0	2.5	3.7	3.8	3.3	3.2	2.4
November, 1959	2.9	3.3	3.7	2.9	2.3	3.4	3.5	3.0	3.3	2.5
December, 1958	3.7	3.3	4.2	3.8	3.4	3.9	4.2	3.7	3.9	2.9
Average (1948-57)	5.7									
Average (Dec., 1948-57) ..	5.5									
Broilers:										
December, 1959	3.8	3.8	4.5	4.0	3.8	3.8	3.5	3.6	3.8	3.8
November, 1959	3.2	3.4	4.3	3.4	3.4	3.0	2.9	3.1	3.6	3.4
December, 1958	3.1	3.2	4.1	3.3	3.4	2.9	3.0	3.1	4.0	3.2
TURKEY-FEED—										
December, 1959	9.0	7.2	9.1	9.3	10.1	8.4	8.3	8.5	8.6	8.2
November, 1959	7.5	6.7	8.1	7.6	8.7	7.2	7.5	7.5	7.3	6.5
December, 1958	7.0	6.5	8.6	7.4	8.1	6.5	7.5	6.8	6.5	5.6
Average (1948-57)	8.6									
Average (Dec., 1948-57) ..	9.3									
EGG-FEED—										
December, 1959	9.3	10.0	10.1	8.4	8.0	10.7	12.1	11.2	10.6	8.4
November, 1959	9.5	10.0	10.5	8.7	8.1	10.6	11.7	10.8	10.7	7.8
December, 1958	11.0	10.4	11.5	10.2	9.9	11.6	13.1	12.5	11.8	10.1
Average (1948-57)	11.1									
Average (Dec., 1948-57) ..	12.5									

	U.S.	North Atl.	East North Cent.	West North Cent.	South Atl.	South Cent.	West
MILK-FEED—							
December, 1959	1.56	1.51	1.50	1.67	1.71	1.76	1.49
November, 1959	1.60	1.59	1.55	1.71	1.72	1.76	1.49
December, 1958	1.52	1.51	1.43	1.58	1.72	1.73	1.50
Average (1948-57)	1.29						
Average (Dec., 1948-57) ..	1.42						
BUTTERFAT-FEED—							
December, 1959	26.5	...	21.2	29.6	...	17.5	19.2
November, 1959	26.0	...	21.1	28.9	...	17.5	19.0
December, 1958	24.6	...	20.4	27.6	...	17.0	19.3
Average (1948-57)	22.0						
Average (Dec., 1948-57) ..	22.8						

	U.S.	North Cent.
HOG-CORN—		
December, 1959	11.7	11.9
November, 1959	12.4	12.6
December, 1958	17.2	17.6
Average (1948-57)	13.4	13.7
Average (Dec., 1948-57) ..	13.3	13.5

NOTE: Ratios computed at mid-month by U.S. Department of Agriculture. Ratios represent number of pounds of poultry feed equal in value to 1 lb. live farm chicken, turkey or 1 doz. eggs; pounds broiler growing mash equal to 1 lb. broiler; pounds concentrate rations equal to 1 lb. milk or butterfat; bushels of corn equal to 100 lb. hog. Increases in ratios are favorable to the feeder.

KEY TO GEOGRAPHICAL DIVISIONS

Here is a guide to the states included in the geographical divisions listed in the accompanying commodity-feed price ratios:

New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

Mid-Atlantic: New York, New Jersey, Pennsylvania.

North Atlantic: New England and Mid-Atlantic states combined.

East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin.

West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

North Central: Combination of the two foregoing.

South Atlantic: Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.

East South Central: Kentucky, Tennessee, Alabama, Mississippi.

West South Central: Arkansas, Louisiana, Oklahoma, Texas.

South Central: Combination of the two above.

Pacific: Washington, Oregon, California.

Mountain: Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Montana.

West: Combination of the two above.

Purina's Quarter Net Below Year Ago, But Downtrend Reversed

ST. LOUIS — Profits of Ralston Purina Co. for the first quarter (ended Dec. 31) of the 1960 fiscal year, will be below those of the same period a year earlier, according to Raymond E. Rowland, president, but first quarter profits reversed a downward trend evident in the final quarter of the company's 1959 fiscal year, which ended Sept. 30.

Mr. Rowland was quoted by the Wall Street Journal as saying at the company's annual meeting that profits have been hurt by "competitive conditions in the broiler chicken industry and resultant losses in credit accounts."

Purina's profits for the first fiscal period of 1959 were $4,851,482, or 75¢ a share. (A comprehensive account of the company's sales and profits for 1959 was reported in Feedstuffs Dec. 19). In fiscal 1959, Purina had a net income of $17,784,368 on sales of $530,571,672.

"We expect fiscal 1960 to be very close to 1959 profitwise," Mr. Rowland said. He expects a 5% increase in tonnage sales of feed in fiscal 1960. The 1959 tonnage was more than 5 million.

"The situation in the broiler industry, where we sell about 15% of our total tonnage, is not corrected yet," Mr. Rowland said. "Fundamentally, the broiler industry is sound, but it is going through a readjustment period." He reported that the company has tightened its credit policies, but has a bigger carryover of doubtful accounts this year than last.

The Wall Street Journal reported that Purina expects to spend during fiscal 1960 about half as much as the $23 million allocated for capital additions in fiscal 1959. Of last year's allocation, approximately $15 million was spent to acquire four soybean crushing mills from Procter & Gamble Co. and to build a cereal and dog food plant in Cincinnati.

Broilers Steady, Eggs Mostly Down, Turkey Prices Generally Good

NEW YORK — Little change in broiler and fryer prices, an irregular and mostly downward trend in eggs and a generally good turkey market were reported by the U.S. Department of Agriculture for the week ended Jan. 6.

POULTRY — USDA said broiler and fryer live prices during the period were mostly unchanged in the southern producing area, fractionally lower in Delmarva and generally 1¢ higher in the Midwest.

The period was said to have closed with a weak undertone.

EGGS—The notable exception to the nation's generally irregular and mostly downward trend in the shell egg market was on the west coast where the price level was unchanged to as much as 3¢ higher. Other markets declined to as much as 5½¢ below the market of Dec. 30. Most declines ranged from 1 to 3¢.

Demand appeared to hold up fairly well, but offerings were liberal at most points and exceeded current requirements.

TURKEYS — USDA said market activity in frozen turkeys during the week ended Jan. 6 was limited.

Prices declined ½@2¢ on consumer-size toms in the terminal markets, while heavier weights toms were unchanged to fractionally higher. Hen prices were unchanged.

MILL BEING BUILT

JACKSON, MINN.—A new feed mill is now under construction here by the Farmers Co-op Elevator, Superior, Iowa.

SAFER, MORE FLEXIBLE PROTECTION AGAINST BOTH BLACKHEAD AND HEXAMITIASIS!

START NOW TO ADD

HepZide®

MERCK

with THE MERCK MARGIN OF SURETY

TO YOUR FORMULATIONS

Since HEPZIDE was introduced, it has proved a valuable aid in protecting against the parasites responsible for blackhead in turkeys and chickens and hexamitiasis in turkeys. Now... HEPZIDE "30" added to your rations will help provide growers with *protection* against costly outbreaks of these two important protozoan diseases, with a range of use levels to meet varying field conditions.

Absence of Side Effects. Thoroughly tested under rigorous field conditions, HEPZIDE has proved remarkably safe.

HEPZIDE does not interfere with

- growth
- sexual development
- subsequent egg production
- fertility or hatchability

Sustained Feed Consumption. Because HEPZIDE in feeds at recommended levels is palatable, rations are readily consumed by young, growing and mature birds. Thus, birds can receive protection from brooding to marketing.

Through reducing disease incidence and maintaining feed consumption, HEPZIDE helps poults make consistent gains in weight... helps growers finish their birds with profitable feed conversion ratios.

Benefits of Preventive Program. The most practical and economical approach to the problem of blackhead and hexamitiasis is the *continuous* use of feeds medicated with HEPZIDE. Prophylactic levels of this compound will help check tissue damage and mortality as a result of these diseases, *and your growers market heavier birds at an earlier age.*

Merck & Co., Inc., Chemical Division, Rahway, N. J.

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Oppose Mandatory Grade Labeling At This Time

MINNEAPOLIS — The mandatory labeling of dressed turkeys as to grade and sex in retail markets may not be to the advantage of either consumers or turkey raisers, directors of the National Turkey Federation said here this week at their annual convention.

The directors, representing some 10,000 commercial turkey producers, agreed to rescind their decision of the previous year in favor of the program.

An NTF committee, which has been conducting a study of the proposed program, pointed out at the meeting that available research indicates no differences between toms and hens for flavor, juiciness and tenderness.

No one objects to the idea of a product being properly labeled, said the committee, but it is possible that grading could become so complicated as to serve neither the interests of consumers nor producers.

Current grading standards do downgrade many turkeys for defects which have nothing to do with eating qualities, the committee report continued.

"It would appear impractical to develop a mandatory grade labeling program until such time as grading standards more nearly represent quality in the minds of consumers," federation officials concluded.

"Regardless of what consumers believe they want in the way of identification at point of purchase, they are influenced most by appearance (quality) and total price (which is the inter-relationship of weight and price per pound)," the committee noted.

The federation plans to continue its study of grade labeling and the identification of turkeys as to toms and hens in retail channels.

Serving on the committee on mandatory grade and sex labeling of turkeys were: Dr. L. A. Wilhelm, The Quaker Oats Co., chairman; H. C. Kaufman, Waterman, Ill.; J. H. Florea, Watt Publishing Co.; Dr. K. Hood, American Farm Bureau Federation, and J. W. Mueller, National Tea Co.

A panel on the program also discussed "Does Our Industry Want Mandatory Grade and Sex Labeling?" Dr. Wilhelm led the discussion.

Memphis Futures Up On Oilseed Meals

MEMPHIS, TENN.—Oilseed meal futures moved higher on the Memphis Board of Trade the past week.

Soybean oil meal and cottonseed oil meal held relatively firm over the week, with mixed feed business showing some signs of improvement. Pit observers said that forecasters for the immediate future and following month indicate a better demand for feed products.

Soybean oil meal in the southern area has followed a slower moving trend than noticed by northern unrestricted processors, apparently developing from a fair demand for feed in the South plus larger production of soybean oil meal for the immediate future.

Some price increase was noted for old process cottonseed oil meal for January shipment. Forward buying of old process and solvent cottonseed oil meal continued to be slow.

Memphis basis soybean oil meal closed Jan. 5 25@50¢ ton higher than on Dec. 29. Unrestricted soybean oil meal was 10@60¢ higher. Bulk solvent cottonseed oil meal was unchanged to 50¢ higher.

NTF Opens Drive To Raise Funds

MINNEAPOLIS — Bearded "Paul Bunyans" and four Oregon turkey queens bearing a giant roast turkey on a platter were two of the lighter moments in the turkey industry's kick-off luncheon to raise $175,000 in 1960 for nationwide product promotion.

The luncheon also marked the opening of a three-day convention here in the Municipal Auditorium by the National Turkey Federation.

Altogether, better than $100,000 was presented in checks or pledges toward the 1960 goal of the national Eat-More-Turkey Campaign sponsored by the federation. Seven states met their complete quotas for the 1960 campaign, turning in a total of $72,330. Five others made up the balance.

Minnesota led the list with close to $30,000 presented to Gerald Bonnett, Havana, Ill., fund chairman. Its presentation was sparked by a check borne by A. E. Eisenmenger and Franklin Page, St. Paul—both wearing false beards. Iowa was a close second with $17,500, and added humor to its presentation with a turkey-costumed official towing a giant dressed bird.

Oregon representatives carved a giant model of a roasted turkey, carried into the hall by the four Oregon turkey queens, to locate its check for $3,710. Also paying their full quota for 1960 were Utah, Colorado, Texas and North Dakota.

More than 750 industrymen were on hand to applaud the donors. Also singled out for honors were the 25 states that made or exceeded their quota in the 1958-59 campaign. The total sum raised was $141,331.

C. N. Thurnbeck, Forest Lake, Minn., chairman of the research fund, told the assembled turkeymen that nearly $12,000 was raised for NTF-sponsored research projects in 11 colleges and universities during the past year. Presentations for the 1960 fund, totaling slightly more than $4,000, came from Minnesota, Oregon and North Dakota.

Oregon Turkey Man Takes Show Honors

MINNEAPOLIS—David Cooper, Parkdale, Ore., turkey grower, won both grand and reserve championships in the National Dressed Turkey Show here this week.

The show, held in conjunction with the annual convention and exposition of the National Turkey Federation drew entries from as far away as California, Texas and New Hampshire.

Mr. Cooper's winning bird was a 22 lb., 11 oz. hen. His runner-up was a 39 lb., 14 oz. tom.

Mr. Cooper also won reserve honors in the sweepstakes display. Final results were based upon the total number of points gained by all birds entered, regardless of class.

Second to Mr. Cooper was the Steenbergen Turkey Farm, Ironton, Ohio, winner of the event the past two years. The Steenbergen family won the sweepstakes award, the champion's cup in the fryer-roaster class and the grand championship of the junior division.

Jerry Ash, Ashkum, Ill., was runner-up in youth competition. Each of the top winners in the junior division received a cash award of $200, donated by allied industries. These firms donated a total of $1,150 for the youth winners.

About 150 birds were entered in the contest, it was announced by D. D. Moyer, A. E. Staley Mfg. Co., Decatur, Ill., coordinator of the show committee. Judges for the contest were Harry H. Kauffman, Pennsylvania State University, and Frank Santo, U.S. Department of Agriculture.

61-lb. Carolina Turkey Wins 'Biggest' Award At National Convention

MINNEAPOLIS—The state of South Carolina and Gov. Ernest F. Hollings proved that when it comes to raising block-busting turkeys, other areas must take a back seat.

Although the host state, Minnesota, brought in a giant bird that tipped the scales at close to 50 lb., it fell far short of matching the 61-lb., 4-oz. behemoth from the Southeast, grown out by Carl B. Setzler, Newberry, S.C.

The contest for the Governors' challenge trophy was one of the highlights of the 12th annual exposition and convention of the National Turkey Federation.

Altogether, seven big birds from as many states were entered in the "heaviest turkey" competition. Each had the official sponsorship of the governors in the respective states.

Utah's runner-up bird in the contest weighed in at 55 lb., 10 oz., and was raised by William Barlocker, St. George. Other entries were: Kansas, 50 lb., 6 oz., raised by Ingersoll Turkey Farm, Michigan Valley; Nebraska, 50 lb., 3 oz., raised by the Nebraska Turkey Federation, Lincoln; Iowa, 48 lb., 2 oz., grown by Howard Pearson, Williams; and Indiana, 47 lb., 5 oz., reared by the Indiana Farm Bureau Cooperative, Indianapolis.

Paymaster Announces Personnel Changes, Integration Expansion

ABILENE, TEXAS — Reorganization and reassignment of personnel and responsibilities have been announced by W. A. Williams, general manager of Paymaster Feed Mills, division of Anderson, Clayton & Co., Inc.

Under the new alignments, Charles Partin, formerly general sales manager, becomes manager of the newly organized integration department, through which Paymaster is expanding in the integrated production and marketing of poultry, eggs and other products.

Mr. Williams said, "Paymaster's eastern and western sales divisions have been combined under the general sales management of Wren Vinyard, with Larry Wehrle named assistant sales manager. Paymaster's sales-service organization has also strengthened to provide closer cooperation with both large commercial operators and dealer-customer livestock and poultry raisers. Additionally, service specialists will work directly under mill managers Monroe May in Dallas, and W. A. Gandy, in Abilene.

"This reorganization and reassignment of our people will result in better over-all efficiencies in serving all of our markets—for feed, for meat and egg production, and for the development of consumer markets."

Vitamin A Is Topic for Twin City Seminar

ST. PAUL—Vitamin A will be the subject under discussion at the next Twin City Nutrition Seminar, to be held Tuesday evening, Jan. 19, at the University of Minnesota.

The speaker will be Dr. J. C. Bauernfeind, food and agricultural products division, Hoffmann-LaRoche, Inc., Nutley, N.J. He will discuss vitamin A availability, stability and standards.

The seminar will be held in Peters Hall, starting at 7:30 p.m.

HATCHERY HOLDS OPENING

FORT DODGE, IOWA—The Stromberg Hatchery held a grand opening for its newly-constructed feed mill here recently.

FDA Proposes List Of Trace Minerals Recognized as Safe

WASHINGTON — A Food and Drug Administration proposal that 37 compounds serving as the source of minerals in animal feeds should be generally recognized as safe was announced.

The action is a further move to comply with provisions of the food additives amendment, which, FDA pointed out, covers substances added to animal feeds as well as those for human foods.

The agency has listed the minerals, with limits on amounts to be used, for consideration by qualified experts throughout the country. Included in the proposal, published in the Dec. 31 Federal Register, are compounds which are the sources of cobalt, copper, iodine, iron, manganese and zinc.

FDA recognizes the practice of adding mineral salts to feed mixtures for swine, cattle, poultry and sheep. It has been scientifically demonstrated, however, that harmful effects can result from feeding excessive amounts of these compounds. The limitations on amounts to be used in feeds are intended to define safe levels for the total ration to prevent possible harm to animals, FDA said.

Under the agency proposal, cobalt would be restricted to use as a feed supplement for ruminants — cattle, sheep and goats. Zinc would be restricted to use as a feed supplement for swine and poultry only. These restrictions, the agency said, are based on data indicating that cobalt and zinc have value only for the animals specified. No restrictions as to species of animal are proposed for the other minerals because they are believed to have some value for all animals, according to FDA.

Interested persons are allowed 30 days to make written comments, after Federal Register publication.

Compounds Listed

The minerals, the maximum amounts which would be allowed under the "exemptions" and the source compounds covered in the list are as follows:

Cobalt—.0002%—cobalt acetate, cobalt carbonate, cobalt chloride, cobalt oxide.

Copper—.0050% — copper carbonate, copper chloride, copper gluconate, copper hydroxide, copper oxide, copper sulfate.

Iodine—.00015%—calcium iodate, cuprous iodide, potassium iodate, potassium iodide, thymol iodide.

Iron—0.250%—ferric ammonium citrate, ferric chloride, ferric oxide, ferric phosphate, ferric pyrophosphate, ferrous carbonate, ferrous gluconate, ferrous sulfate, reduced iron.

Manganese—.0050% — manganese carbonate, manganese chloride, manganese dioxide, manganese gluconate, manganese oxide, manganese sulfate, manganese phosphate (dibasic).

Zinc—.0050%—zinc acetate, zinc carbonate, zinc chloride, zinc oxide, zinc sulfate.

Cobalt would be limited to "food for ruminants only" and zinc "to the diet of poultry and swine only."

Elevator, Mill Burn

CUMMINGS, N.D.—Fire which broke out beneath the feed mill roared through the Farmers Elevator here early Jan. 1 causing an estimated $200,000 damage and destroyed the 100-foot elevator and two annexes. Harold M. Sorley, son of owner, Harold A. Sorley, Fargo, said some 60,000 bu. of grain plus a feed mixing and grinding plant are in ruins.

FDA States Policy On Extension of Compliance Time

WASHINGTON—The Food & Drug Administration has announced its policy on extensions of time for compliance by food and chemical manufacturers with the requirements of the Food Additives Amendment.

FDA said that although there are many chemicals commonly used in foods which are generally recognized as safe, there are numerous others for which safe tolerances must be established by regulation. The agency said it is not possible at this time to determine whether tolerances will be established for them before the Food Additives Amendment will become fully effective. Manufacturers, distributors, users and food law enforcement officials need to know the status of these additives under the amendment prior to March 6, 1960, so that they will know whether they may be employed after that date.

Regulations on Extension

FDA pointed out that all food additives must be cleared for use before the March 6 date unless an extension is granted. Use of a food additive without a formal authorizing regulation or an extension of time after March 6, 1960, will cause the food containing it to be adulterated and illegal for shipment, the agency added.

According to the law, this date may be extended on a product-by-product basis for a time not to exceed 12 months "on the basis of a finding that such extension involves no undue risk to the public health and that conditions exist which necessitate the prescribing of such an additional period." FDA said extensions may be granted only for uses of a food additive that was in use prior to Jan. 1, 1958.

Extensions will not be granted for a food additive if appropriate tests show the production of cancer in test animals at any dosage level. Nor will they be granted if such tests show alarming symptoms other than cancer in any dosage, unless experimental data show a level of feeding to test animals that is safe to the animal and provides a satisfactory margin of safety for the levels in the human diet.

Requests and supporting data for time extensions should be filed with the Commissioner of Food and Drugs by Feb. 1, 1960, FDA said. This will permit the agency to act on the requests and publish its decisions in the Federal Register before the law takes effect. Manufacturers, distributors, users and food law enforcement officials will thus be informed as to the specific food additives that may legally be used.

Information Required

Each request for an extension should be addressed to the Commissioner of Food and Drugs, and should give:

1. The name and chemical composition of the food additive for which extension is requested.

2. A statement of the uses of the food additive for which extension is requested and evidence that these uses were recognized prior to Jan. 1, 1958.

3. Information about the physical or technical effect produced by the additive and the quantity needed to produce such effect.

4. Information about the quantity of the additive expected in or to be added to the food.

5. Available information which indicates that these amounts of the additive in food will not jeopardize the public health.

6. A statement of the reason(s) why a tolerance has not previously been requested.

Egg Pricing System Topic at Southeastern Poultry, Egg Meeting

DECATUR, GA. — The controversial egg pricing system will get a "going over" at the Southeastern Poultry & Egg Assn.'s annual convention - exposition in Atlanta's Municipal Auditorium, Jan. 25-27.

Ralph Thomas

A panel discussion of "Factors That Affect Egg Prices" will highlight the commercial egg portion of the three-day educational program Tuesday afternoon. The commercial egg program also will feature an address by the Poultry and Egg National Board president, Ralph Thomas of the DeKalb Agricultural Assn. Mays Montgomery, Athens, Ala., will preside at the session.

Sidney Miller, Irwinton, Ga., president of the Georgia Egg Assn., will preside at a meeting of his group following the program.

In keeping with the convention theme, "Let's Face the Facts," Mr. Thomas will outline both what lies ahead for the commercial egg industry and report on PENB promotion plans.

Joe M. Tankersley, Gainesville, Ga., Southeastern vice president, is chairman of the convention program committee. He notes that a producer-marketing expert, Dr. J. C. Huttar of the Grange League Federation, Ithaca, N.Y., will take part in the panel discussion on egg pricing. Dr. J. Clyde Driggers, chairman of the University of Georgia poultry division, Athens, will moderate the discussion. It also will include as panelists Glen Woodard, Winn-Dixie Stores, Jacksonville, Fla., as a retailer; Gordon Urner of Urner-Barry, New York, as a market reporter, and C. W. Knauf, Weinburg Brothers & Co., Chicago, as a distributor.

Other items of interest on the educational program beginning Jan. 25 will be a business meeting and a discussion of the federal inspection program on Monday; business management subjects, a turkey day program and the annual banquet on Tuesday and broiler production and marketing day when producers from Georgia and neighboring states will come to the auditorium which will be filled with poultry exhibits on Wednesday.

Registration begins at the auditorium, Monday at 9 a.m., but exhibitors and early-birds will be registered over the week-end at downtown Atlanta hotel lobbies, according to Harold E. Ford, SEPEA, executive secretary. The exhibit hall opens Monday at 9 a.m. but the educational program begins at 2 p.m., leaving visitors time to visit with many of the 188 companies having exhibits in the four exhibit halls.

A highlight of Tuesday's banque', when officers for 1960 will be installed, will be recognition of the top FFA broiler producer of the Southeast. Nine state champions, already winners of $100 each, are competing for a $500 regional award.

Purina Declares 30c Quarterly Dividend

ST. LOUIS—The board of directors of Ralston Purina Co. declared a quarterly dividend of 30¢ per share of common stock, payable March 11, 1960, to shareholders of record Feb. 19, 1960, at a meeting here Jan. 4.

At the annual stockholders meeting, three members of the board of directors were reelected to three-year terms. They were Raymond E. Rowland, president; Dr. Earl L. Butz, Purdue University, and Leif J. Sverdrup.

Hearing on Suits Against Chemell Set

By Special Correspondent

ATLANTA—A hearing will be held Jan. 12 in Gainesville to determine whether L. A. Chemell is entitled to farmer's immunity in bankruptcy proceedings instigated against him individually by feed companies and trustees for defunct corporations Mr. Chemell once headed.

The hearing will be held before J. Ellis Mundy, federal referee in bankruptcy, and is expected to be lengthy in view of the amount of testimony anticipated by plaintiff and defendant.

Trustees are suing for claims of $589,991.65 for the Gainesville Hatchery and $691,084.80 for the Chemell Hatchery, while the Ralston Purina Co. claims Mr. Chemell owes it $953,-131.20 and the Pillsbury Co. has filed claims for $229,170.56 against Mr. Chemell. The suits claim Mr. Chemell is involuntarily bankrupt.

Claims of the Internal Revenue Department, which have a priority, list $155,660.59 due in corporate income tax from the Gainesville Hatchery, $3,100 from Chemell Hatchery and $300 from Chemell, Inc.

Mr. Chemell did not list any personal assets in this latest of litigations against his corporations which were declared voluntarily bankrupt last October.

Beacon Milling Names Marketing Specialist

CAYUGA, N.Y. — Appointment of Bruce F. Failing as marketing specialist for the Beacon Milling Co. division of Spencer Kellogg & Sons, Inc., has been announced by Robert E. Miller, director of marketing.

B. F. Failing

He will be responsible for developing programs to assist Beacon's customers to market quality poultry meat and eggs at more profitable levels. Mr. Failing had 19 years' experience with retail marketing operations prior to joining Beacon in 1956. He was a member of the firm's credit department prior to his present appointment. Mr. Failing is a graduate of Syracuse University.

Soy Plant Destroyed

WEST BEND, IOWA — Fire destroyed the soybean processing plant of the West Bend (Iowa) Elevator Co. Jan. 2.

R. W. Jurgens, plant manager, estimated the damage at between $75,-000 and $100,000. He said the building contained crushers, dryers and other equipment for processing soybeans.

Cause of the fire was attributed to an explosion of an air compressor. No one was in the building at the time of the explosion, but a volunteer fireman died of a heart attack after helping fight the blaze.

Mr. Jurgens is making arrangements with other cooperatives in the area to do processing for his customers.

Fire Damages Offices

ATLANTIC, IOWA — Fire caused an estimated $10,000 damage at the administrative offices of Walnut Grove Products Co. Jan. 3.

Firemen battled the blaze for more than an hour in near zero temperatures. The offices are located across the street from the firm's main plant.

Plant officials report the firm's records and documents were not damaged in the fire which was confined mainly to the roof and wall partitions. There was heavy smoke and water damage.

Northwest Retail Feed Convention Plans Complete

MINNEAPOLIS — Plans for the 1960 Northwest Retail Feed Convention to be held Jan. 17-19 at the Hotel Pick-Nicollet have been completed.

Among the topics to be under discussion by featured speakers will be nutrition, management, drugs and additives, feed men's problems and bulk feed.

Sunday, the opening day of the convention, will be devoted to an insurance committee meeting, a board of directors meeting and a dinner for officers and directors and their wives.

The convention proper gets under way Monday, Jan. 18, with three major talks scheduled for the morning and another for the afternoon.

J. R. Adams, Peavey Feed Mills, Minneapolis, opens the program with a discussion of the means of getting producers to provide bulk feed facilities on their own farms.

A review of some of "feed men's shortcomings" then will be presented by Theodore Martell, Veterans' ag instructor at Belgrade, Minn.

In the closing address of the morning, George G. Greenleaf, formerly of Michigan State University and now executive secretary of the Ohio Grain & Feed Assn., will make comments on feed men.

Following the luncheon, W. E. Glennon, president of the American Feed Manufacturers Assn., Chicago, will discuss the actions of the Food and Drug Administration as they relate to drugs and additives in feed.

A "bull session" will be held after Mr. Glennon's talk, with pelleting equipment and quality and inventory control as topics to be discussed.

The election will be held Monday afternoon at a closed session for members. The annual banquet and floor show is scheduled for Monday night.

Tuesday's closing session will be devoted to a panel on livestock nutrition and management, with Dr. H. J. Sloan, director of the Agricultural Experiment Station on the St. Paul campus of the University of Minnesota, as moderator. On the panel will be Dr. Wise Burroughs, Iowa State University, covering beef cattle; Dr. Paul E. Waibel, University of Minnesota, discussing poultry feeding, and Dr. Robert J. Meade of Minnesota, discussing swine nutrition.

Ladies attending the convention will be treated to a free breakfast Monday morning as well as attending the banquet.

Explosions Rip Mill

COLBY, WIS. — Explosions followed by fire killed two men and caused damage estimated at $250,000 at the Colby Milling Co. elevator and mill here. Three other employees were hospitalized.

The explosions were believed caused by an accumulation of dust from milling processes, set off by a spark from an unknown source.

About a dozen persons were believed to have been in the building when the explosions occurred. Ervin Marcus, owner of the firm, was shaken up, but otherwise unhurt. Guy Durazio, secretary-treasurer, and Richard Welchains, traffic manager of the company, were not hurt.

Feed Broker Moves

MEMPHIS, TENN. — Barry T. Griffin, associated with C. G. Carter, broker, here for 5½ years, has left to join H. O. Toler, broker, in the Memphis Cotton Exchange Building.

Mr. Griffin was with Anderson-Clayton & Co. here for six years prior to joining C. G. Carter.

The Toler firm deals in cottonseed and soybean products.

Mr. Griffin is treasurer of the Memphis Feed & Grain Club.

AG CHEMICALS

(Continued from page 1)

portance of chemicals to agriculture and that it was its intention to be helpful without at the same time creating alarm.

The commission's function is to study various agricultural problems with a view to suggesting appropriate state legislation.

Broad Representation

Approximately 75 witnesses and observers were present, including representatives of the feed industry, drug suppliers, the University of Minnesota faculty, the Mayo Clinic and state government officials. A number of those present agreed that the session had met the objectives of the commission chairman in presenting an "enlightening, educational and fruitful" discussion.

Some of the major points brought out by the various witnesses were these:

- We are living in a chemical environment, and certain "calculated risks" must be accepted in using chemicals, not only in food production but in medical practice as well.
- The possible hazards of chemical use are subject to extensive scrutiny, through toxicity testing, label warnings and directions for use, inspection procedures by governmental agencies and controls imposed by manufacturers.
- Problems develop chiefly because of failure of users of chemicals to pay attention to warnings and directions for safe use.
- Some people are particularly sensitive to certain chemicals not harmful to others.

Dr. Malcolm M. Hargraves of the Mayo Clinic, who led off the discussion, elaborated extensively on the latter point. He reported a number of case histories of patients afflicted with leukemia, anemia and other illness which he attributed to insecticides or industrial chemicals. Most people, he said, can tolerate chemicals, but some, whom he described as "in delicate equilibrium" can suffer severe consequences from contact with very small quantities of certain chemicals.

Dr. Hargraves commented that some of the relationships of chemicals to disease are extremely difficult to prove and that many medical authorities do not subscribe to his theories. However, he said he was "getting more converts."

Chemical Environment

Dr. W. T. Thorp, dean of the school of veterinary medicine at the University of Minnesota, emphasized that "we are living in a chemical environment," and noted that the question to be answered is whether additional controls are needed. The feed and chemical industries are just as concerned with these problems as the health authorities, he commented.

The dean also observed that certain risks are involved in use of drugs in disease treatment, such as the sensitivity of some patients to penicillin. Dr. Thorp submitted to the commission copies of the Food and Drug Administration's report on the chronology of the use of stilbestrol in feed.

Dr. Max Schultze, Minnesota professor of biochemistry, emphasized that feed additives are subject to extensive testing before they are accepted for use. Testing is a difficult proposition, involving study of both chemical effects and physiological effects, he said. The great differences in response of various animal species must be taken into consideration, he said, as well as differences between individuals of the same species. Many of the chemicals used in agriculture have proved their value, he said, and we could not live without them anymore. "We are accepting calculated risks, but at the same time we must ask whether we have a basis for calculating the risks." Dr. Schultze suggested that more basic information resulting from tests with different species is needed.

Dr. Maurice B. Visscher of the Minnesota medical school faculty, agreed with most of Dr. Schultze's points and emphasized that longer-term toxicity tests are necessary. "The time to determine toxicity is a life span," he said. A difficulty, he noted, develops in reevaluating substances when new data appears, and in this situation the burden shifts to FDA.

Dr. Harold Wright, also of the Minnesota medical school staff, commented that the danger to hypersensitive people extends far beyond the range of food additives. He suggested that clear, large-type statements are needed on all foods, listing additives.

FDA Operations

Dr. Charles Durbin, veterinary medical director of FDA, Washington, told the commission that FDA requires long-term toxicity data for food and feed additives, with some extending up to seven years. Also, FDA requires test data on three distinct species of animals.

A concern of FDA, he said, is the tendency of consumers to disregard warning statements. The problem of penicillin residue in milk resulting from use of the drug for mastitis treatment has been a particular one for FDA. The agency has tried reduction of dosages, issuance of warning statements and educational programs, but now it is necessary to bring regulatory action, he said.

Dr. Durbin commented that the medical profession generally has not been fully aware of the extent of use of drugs in feeds.

The FDA official also pointed out that the agency is constantly testing food products for residues and making seizures when necessary. However, additional personnel and laboratory facilities are needed, he said.

Comments by James M. Gillet, consultant for the Manufacturing Chemists Assn., and Dr. K. B. Kerr of Dr. Salsbury's Laboratories supplemented the statement made by Earl Hanson concerning industry's approach to use of additives.

Mr. Hanson pointed out that feed additives break down into three general classifications: (1) Drugs for prevention of disease or parasites, (2) Drugs for treatment or control of disease outbreaks or parasitic infections and (3) Drugs for stimulating rate of growth and/or improving reproductive efficiency.

"The addition of drugs to rations does not give the livestock feeder a license to forget good husbandry practices," he said. "In fairness to the drug producers, livestock specialists and veterinarians, it should be mentioned that they are as concerned as the feed manufacturers about the importance of emphasizing good management in disease prevention and control."

Mr. Hanson outlined the procedures followed by feed manufacturers before offering for sale feeds containing drug additives, including FDA and state feed control clearance, labeling requirements and analysis.

Precautions Taken

For at least 20 years, Dr. Kerr pointed out, the potential harmfulness of additives has been taken into consideration by FDA before it would make a new drug application effective.

"Regardless of what has occurred in the past, the question which should always be asked before permission is granted for the use of an additive is, 'Does it provide a beneficial effect without a harmful potential?' Without a doubt it can be said that the feed additives provided by the pharmaceutical industry have permitted the poultry industry, including turkeys, to grow into the multibillion dollar industry that it is today.

"This has materially contributed to the availability of inexpensive animal protein in the diet of our citizenry. The beneficial effect is thus obvious both for the poultry industry and the general health of the public."

Dr. Kerr pointed out that the small quantities of additives which are found in tissues of animals consuming them can be avoided in food by withdrawing the additives from the feed a few days before the poultry or livestock are slaughtered.

Representatives of other pharmaceutical companies present were asked if they wished to make statements, but they responded that they did not have any comments at this time.

COMMODITIES

(Continued from page 1)

point wherein all Commodity Credit Corp. loan grain has been held in storage like a Tiffany diamond regardless of the value of the storage unit.

This condition may readily be a point of attack by Senate investigators who will hear testimony on the operations of CCC starting Jan. 12.

In this connection, it is appropriate to comment that the counsel for this sub-committee of the Senate Agriculture Committee, Richard Schmidt of Colorado, has made a deep impression here at Senate levels as a solid individual who will not grasp sensation to achieve his long range purpose of examination of CCC conditions. In fact, within the Senate Agriculture Committee itself one of the more substantial members of the permanent staff said: "Schmidt is about the best looking thing we have seen around here in a long time."

Returning to the deflationary aspects of the President's State of the Union message, USDA top officials declined to comment on its possible influence on grain prices, but one official said USDA had latitude to cut costs. For example, it was likely that USDA would reduce the price support level for new crop corn to 65% of parity—a reduction—and that USDA might retain soybean price supports at the present level, which is now $1.85 bu., national average basis.

CCC sold soybeans this week at their national average resale price, which might indicate that farmers are holding beans for a higher price level.

USDA officials refused to deny that soybean farmers can make soybean prices this year, despite the fact that large acreage of beans this coming year is now indicated. Beans are a unique commodity. They are grown by a relatively small number of farmers in the Corn Belt.

Beans are a vital component of the feed industry, which is the fulcrum of the entire production of meat, butter and eggs. Soybean farmers have been educated by experience to hold back their crop for their desired price.

Notwithstanding the outlook, bean farmers can and may again push the open market price of beans up to a level which satisfies them. CCC now has in re-seal about 13 million bushels of old crop beans. As of this time, bean farmers have been slow in putting beans into the loan program but they still have time through Jan. 31—and they can make the bean market this year.

Otherwise, the President's message, with its overtones of budget bureau dominance—meaning that it will disapprove of any program which costs more dollars—indicates that other farm programs will be approved only on the basis of reduced costs.

No New Legislation

On the farm legislative front the message indicates a stalemate and no new legislation. Congress will probably refuse to cut the price support level for wheat or reduce the acreage allotment level.

USDA does, however, have the administrative latitude of lowering the price support for cotton under its A and B plans and it probably will do so. And, at the same time, USDA probably will refuse to raise the resale price of the combined cotton turnover default to the CCC of A and B plan cotton from 110% of the low level of support for the B plan cotton to 115%. Such a decision would be in the eyes of budget bureau experts an advance in cost. It would prevent, also, a reduction in the subsidy payment for cotton exports, if the government re-sale price was boosted above the reduced support price line.

These items are all heralds of what is expected to come. And these heralds are all deflationary.

Lone Wolf in Pack

The lone wolf in this commodity pack is soybeans. USDA would not be too unhappy if the soybean farmer held his crop on a high price level, which would make the cost of swine farming expensive in terms of soymeal and thereby would force the hog producer into heavy feeding of his surplus supply of farm corn.

Don't anticipate any radical change in the farm program. Farm program activity will concentrate in agricultural committee hearings which will be designed to show that the present staff at USDA is little less than poltroons through omission or commission.

Little is likely to develop except some political fuel in which the numberless Democratic presidential candidates will find immediate virtue.

The White House message this week ignored the Food-for-Peace item which may indicate that the White House is lately becoming sensitive to common pilfry charges. But the oil donation program is a touch-and-go dollars and cents item as against political connotations and political campaign contributions. This leads one to think that USDA will ultimately give in and approve an oil donation program.

The official attitude remains to be disclosed. It may come out later in a farm message.

One may reasonably suspect that when the ingredients of the budget bureau, politics and campaign contribution sources are measured, there may be an oil donation program. But there are USDA officials who disagree with this thinking.

The deflationary connotations of the White House State of the Union message indicate there will be no advances in farm price supports under the present law, unless the parity formula makes them mandatory—and this is not likely now.

The attacks on Secretary Benson for low prices on the basis of parity price relationship appear ridiculous.

Harold Cooley (D., N.C.), House Agriculture Committee chairman, followed the President's speech to Congress with the comment that farm prices have fallen well below parity.

What Mr. Cooley ignores is that the American housewife is no longer seeing parity on her kitchen table.

Farm prices will have to be geared to current costs of production no matter how sentimental one may get over the so-called family farm. If the U.S. intends to use "food-for-peace," it will have to gear its disposal to its cost of production. And when that happens, the other agriculture producing nations will have to face up to the fact that the U.S. is the lowest cost producer of farm commodities in the world.

The President's message did not go that far, but it is certain that the White House was saying that the U.S. consumer no longer wants to pay the freight on farm producer riders on the gravy train unless they are willing to gear their sales prices to the government under loan programs as some reasonable mark-up over their costs.

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Wafers, Pellets Tested in Steer Rations for Effect on Rate of Gain

Steers fed a complete ration of wafers and pellets gained faster than those fed on coarse chopped hay, but costs of feed per pound of gain were about equal, according to E. N. Hoffman, superintendent of the Malheur branch station in Ontario.

Interest in feeding pellets and wafers is running high, and Oregon State College research men are working to find the answers to questions raised by this new method of feeding. The Malheur trial is one of several experiments now under way.

Yearling steers were fed to compare alfalfa wafers (4 in. in diameter), pellets (⅜ in.) and chopped alfalfa—each supplemented with a grain mix making up 40% of the ration. Hay in both wafers and pellets was coarsely chopped.

Processed Rations Fed

Completely wafered and completely pelleted rations—60% alfalfa and 40% mixed grain—were also fed. Grain mix used in all rations was made up of equal parts of ground ear corn, ground barley and dried beet pulp.

A primary advantage of pelleting, according to Dr. J. E. Oldfield, animal husbandman, is that animals get the balanced diet planned for them, and don't reject roughage and less appetizing ingredients. Low quality feeds can be combined with palatable and nourishing supplements, and the animals can't sort out or leave the less desirable components.

Exceptionally high quality alfalfa was used for the Malheur experiments, however, and Mr. Hoffman reports that steers accepted complete wafers and pellets with the first feeding. Cattle on other mixes required several days to completely accept the test rations.

Steers on the hay pellet and grain mix had the highest average daily gain (2.8 lb.), but complete pellets, complete wafers and the hay wafer and grain mix were close behind in producing daily pounds of gain. Chopped hay rations gave somewhat lower rates of gain (see table).

High Costs

While the animals gained faster on pelleted and wafered hay, extra gains were offset by higher feed processing costs. The complete wafer and complete pellet ration cost 18-20¢ lb. gain, while the chopped hay mixture cost about 16¢ lb. gain.

Dr. Oldfield points out that extra processing cost is one of the limitations in pelleting or wafering. It is often difficult to say whether it pays to feed pellets and wafers. Each situation is different and local costs and feeding conditions have to be considered by the feeder, according to Dr. Oldfield.

The Malheur experiment lasted from November until April of last winter. Weather conditions were quite mild and dry for that part of the state—less than 4 in. of moisture and a low temperature of —3° F. More severe weather conditions might have had an effect on the experiment, according to Dr. Hoffman.

EDITOR'S NOTE: The accompanying article is from Oregon's Agricultural Progress, published by Oregon State College. In it is found a discussion of Oregon feeding trials with pellets, wafers and chopped hay.

Steers Healthy

Steers remained healthy throughout the feeding trials. Eight cases of bloat occurred, but only one was serious. There were no other digestive troubles or illnesses of any kind.

Feed requirements were about the same for all animals on pellets and wafers, but ran slightly higher for animals on the chopped hay rations. Lowest feed requirement was for steers on chopped hay and corn, but they also had the lowest average daily gain.

Stilbestrol Implanted

All animals used in this feeding trial were stilbestrol implanted (30 mg. per head).

Final yield on carcasses did not seem to be a factor in this experiment. Yield on animals fed wafers and pellets was comparable to that of animals getting chopped hay.

Feeding trials at the Malheur station will continue through the winter of 1959-60. Molasses will be added to the rations, and quality of the wafer and pellet will be somewhat higher. Also, the ratio of hay to grain will be raised from 60-40 to 50-50. Lighter cattle will be used and lower quality hay will provide the roughage.

Research in pelleting, wafering and processed feed is going on at several branch experiment stations and at the central station in Corvallis.

● **Weaner calves** fed pelleted hay used 1⅓ times more hay and gained 5 times more rapidly than calves on similar chopped meadow hay. This early pilot study at the Squaw Butte station will be expanded during the coming winter, according to Art Sawyer, station superintendent.

● **Swine,** using the same ration in pelleted and meal form, showed an average daily gain, over a four-week period, of 1.68 lb. on pellets and 1.40 lb. on meal. This preliminary study is being conducted by Dr. Oldfield at the central station.

● **Swine,** fed a ration based on barley, had an average daily gain of 1.78 lb. on pellets and 1.71 lb. on meal. Dr. Oldfield points out that feed conversion was also slightly better on pellets—3.53 lb. required per pound of gain in contrast to 3.87 lb. on meal.

● **Heifers** fed a ration of pelleted bent grass straw had average daily gains of 1.46 lb., compared with 1.25 lb. when grass was fed loose, according to Herb Howell, superintendent, Astor branch station.

● **Cows** were fed 13 lb. alfalfa hay daily in a ration of grass silage and grain. One group got loose hay; the other the same quality alfalfa processed as wafers. Only 3% of the wafered hay was refused, but 28% of the long hay was left, according to Mr. Howell.

● **Lambs** are now on a feeding trial to test effects of roughage in pellets, reports D. C. Church, assistant animal husbandman, central station. Animals are being fed eight different rations of pellets containing 30% alfalfa, 35% grass and 35% concentrates.

● **Dry cows** on feeding trials in Corvallis digested long hay better than pellets, according to Dr. I. R. Jones, dairy husbandman. The same low quality grass hay was pelleted and fed long for the experiment. Animals on pellets failed to ruminate and the ration passed rapidly through the digestive tract. Research is now under way to determine digestibility of alfalfa hay fed long and pelleted.

● **Steers** at the central station soon will be put on feeding trials to compare wafers and pellets, according to Mr. Church. One aim of this experiment is to evaluate different feeding methods. The usual experimental feeding method, which consists of feeding animals twice a day in stalls, will be compared to the usual commercial method of self-feeding.

Results of Feeding Trials Comparing Pellets, Wafers, Chopped Hay

Lot	Ration	Average initial weight	Average final weight	Average daily gain	Average pounds feed per pound of gain	Average feed cost per pound of gain	Carcass grade
		lb.	lb.	lb.	lb.	cents	
1	Complete wafer	866	1,234	2.72	10.71	18	3 choice, 5 good
2	Hay wafer and grain mix	873	1,241	2.70	10.59	17	1 choice, 7 good
3	Complete pellet	867	1,245	2.78	10.59	20	3 choice, 5 good
4	Hay pellet and grain mix	871	1,253	2.80	10.26	17	2 choice, 6 good
5	Chopped hay and grain mix	859	1,196	2.47	11.15	17	3 choice, 5 good
6	Chopped hay and corn	859	1,207	2.55	11.09	16	1 choice, 7 good

Georgia Researchers Test Added Tallow In Swine Rations

GRIFFIN, GA.—There generally is a small increase in the growth rate of animals with a considerable improvement in feed efficiency when fats are added to the ration, two Georgia Agricultural Experiment Station workers report.

Dr. D. M. Baird and H. C. McCampbell reported that two tests were conducted at the station to observe the effect of added inedible tallow at different weight intervals to hogs in dry lot and its value as part of the ration for pasture-fed hogs.

In one of the tests, purebred Poland China pigs were self-fed from approximately 45-200 lb., at which time they were individually removed from the test for slaughter. Protein levels in the drylot were 17, 15 and 13% during the test with downward adjustments being made at 75 and 130 lb. Protein levels for the pastured pigs for similar weight periods were 15, 13 and 11%.

Prime tallow was fed at 8% of the ration in those rations containing fat. Fescue grass was the pasture used, and it was valued at $25 an acre. Dressing percentage was based on warm weight with head on. Cooler shrink was determined after 24 hours in the cooler.

No Differences

Significant differences between treatments for average daily gains and most carcass characteristics did not occur. Barrows gained significantly faster than gilts and tended to be least meaty at slaughter.

The increased use of portable feed grinding and mixing mills has resulted in the increased use of ground ear corn as the home-grown portion of the pigs' ration. Usually, these portable mills and mixers have no facilities for shelling the corn, so the entire ear is ground and mixed with the protein and mineral supplements.

Previous work has shown that ground ear corn will reduce the rate of gain and increase the cost of production.

This test was conducted to compare ground snap corn with shelled corn as a ration for pigs on a winter temporary pasture of Arlington oats. Tallow was added to the snap-corn ration in an effort to increase the caloric density of the bulky ration and thus improve ration performance.

Dr. D. C. Shelton Dr. C. Helmboldt

CONFERENCE SPEAKERS—The ninth annual University of New Hampshire Poultry Health Conference will be held Feb. 4-5, at Durham, N.H. The opening speaker will be Dr. Damon C. Shelton, department of agricultural chemistry, University of West Virginia, Morgantown, who will tell of his recent findings on the "Control and Prevention of Synovitis." The final session of the two-day program is traditionally a panel in which all the speakers participate and answer questions from the audience. Moderator will be Dr. Charles Helmboldt, chairman, department of animal diseases, University of Connecticut, Storrs. Complete program details and registration information can be obtained from the poultry department, University of New Hampshire, Durham.

Carcass observations were made to determine if the higher bulk of the ground snap corn ration would produce a meatier hog.

Purebred Poland China pigs were self-fed a complete balanced ration from 31-200 lb. on pasture and slaughtered as individual hogs weighed 200 lb. Protein levels were 15, 13 and 11%, with lower levels being fed as the hogs reached 75-130 lb.

Tallow Upped Feed Efficiency

The addition of tallow to the shelled corn ration on pasture increased gains an insignificant amount while improving feed efficiency 6.2%. When ground snap-corn was fed a total of 39.2% more feed was required per hundredweight of gain. Based on current feed prices, and including pasture costs, each hundredweight of pork produced cost $3.73 more when ground snap corn was fed rather than shelled corn.

Since these pigs gained approximately 170 lb. during the feeding period, there was a saving of $6.34 for each market hog when shelled corn was fed. At these prices, a producer could afford to pay up to 87¢ bu. to have corn shucked and shelled rather than grind and feed the entire ear in a mixed and balanced ration.

Since the feeding of ground snapped corn in this test failed to improve the carcass, reduced gains, greatly reduced feed efficiency and increased the cost of production, it appears that feeding ground snap-corn in a complete ration would be an unsatisfactory method for producing market hogs.

Delmarva Chicken Festival Is Planned

GEORGETOWN, DEL.—The 13th annual Delmarva Chicken Festival will be held June 17-18.

William Rodney, chairman of the festival committee, said that the site has not been named, but that the following communities are being considered: Harrington, Rehoboth and Selbyville, all Delaware towns, and Ocean City, Md.

A tentative schedule and budget have been made, he said.

Earl Hawk, director of the Miss Delmarva Beauty Pageant, has signed up 13 towns which will sponsor beauty contestants. He estimated that at least 25 contestants are expected for the pageant where the queen is selected to reign over the festival.

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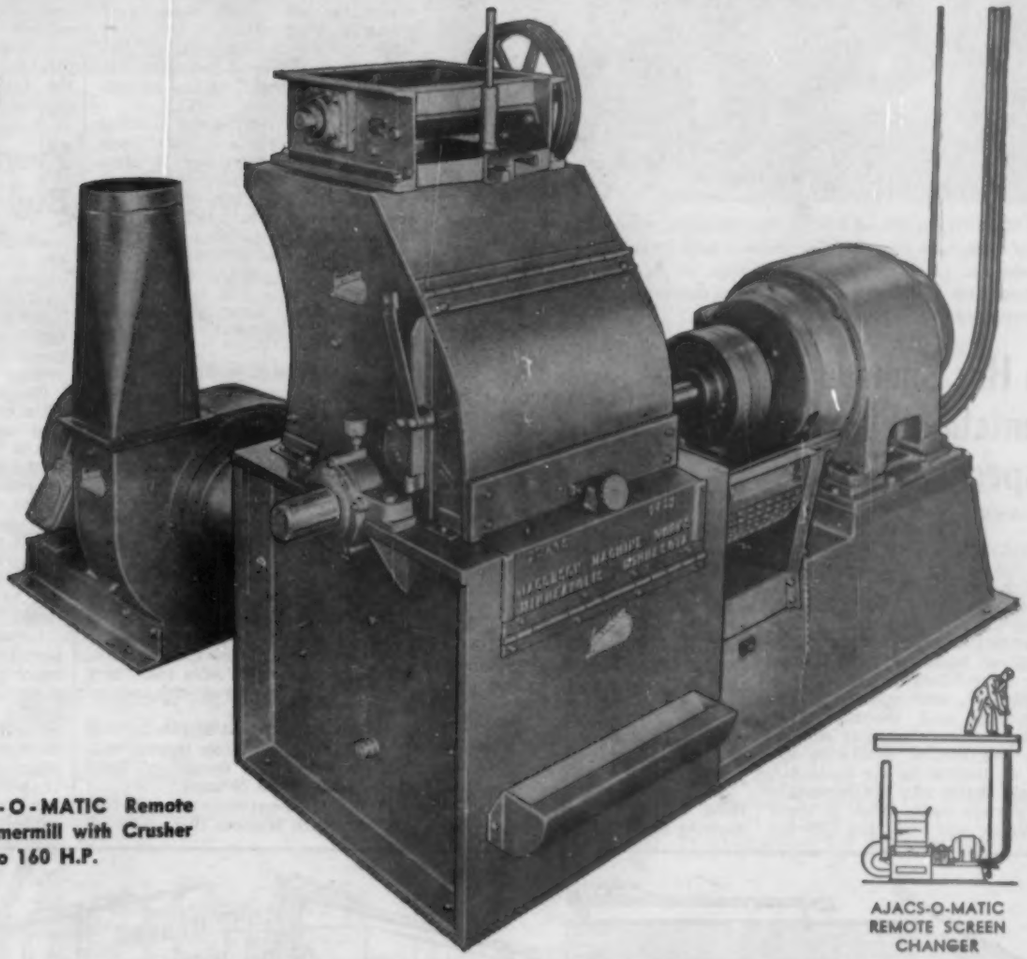

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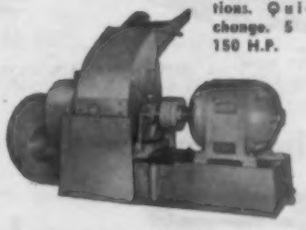

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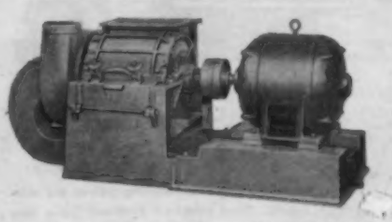

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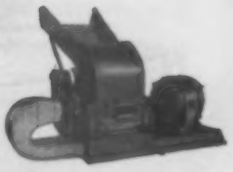

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INTERVIEWING—Hubbard Milling Co., Mankato, recently interviewed University of Minnesota students for summer jobs. Shown (left to right) are: Paul Anderson, placement director, College of Agriculture, Forestry and Home Economics, University of Minnesota; a university student; Don Madden and Quentin Marsh, Hubbard Milling Co.

Firm Has Summer Orientation Plan for Prospective Workers

By **VERMAYNE SUNDEM**
Feedstuffs Staff

MANKATO, MINN. — Hubbard Milling Co. thinks it has at least part of the solution to the problem of getting and training qualified men for feed industry positions.

The "solution" is as simple as this: Give college students jobs in the summer before their senior year.

Don Madden, sales manager, Mankato branch, said recently: "We don't like to hire after only one interview. We like to hire with the idea of a lifetime in the business."

He said that's why it's important for the student really to get to know the business and what it's like before deciding if he wants to work for the company.

Mr. Madden went on to say that working for the company three months in the summer gives the student a chance to know what he should work harder on in his educational program the senior year.

"It gives us a chance to look the boys over while they're with us in the summer," he said. "We can look each other over, and the students can decide if they really want to work for us."

This is only the second year Hubbard Milling has tried the idea of giving one or two students summer jobs. A University of Minnesota student who worked for the firm in the summer of 1958 started working for the company after graduation.

Summer Program

The summer program works something like this: The students first work in the office and get familiarized with the general operation of the company and its various products. Then the students are given training in sales technique, and spend some time studying the firm's research and experimental work. After that they spend a few days at the plant learning at least some of the phases of production. The remainder of the summer is spent on the road with a fieldman "getting the feel" of selling, but not actually doing much selling on their own.

Mr. Madden said the company likes to hire mainly majors in animal husbandry, farm operations and agricultural economics.

Hubbard has interviewed students only at Minnesota and Iowa State, but has thought of going to other universities in the future for prospective salesmen. "We like to hire the type of applicants that are from our local area better than those that aren't familiar with the community they're going to sell in," Mr. Madden said.

Mr. Madden summarized advantages to the student and company as follows:

Advantages to Student

1. Provides summer work between junior and senior year.
2. Gives student a chance to become acquainted with the feed industry before permanently establishing in this work.
3. After summer employment, the student has a better knowledge of what his curriculum should be his senior year to help him upon graduation.
4. The scope of the summer job is wide enough that the student has the opportunity to look at many departments—advertising, nutrition, production, research, sales and others that he may develop special interest in.
5. The student that decides he does not like this work can terminate it gracefully without danger of being tagged as a "job changer."

1. Gives the company the opportunity to secure trainees that show aggressiveness during the first three years of formal training.
2. The student can be studied by the company and directed toward the work he appears best suited for.
3. If the trainee does not "fit" he can return to his college work at the end of the summer and direct his efforts toward some other field.
4. The graduate returning to the company that has had previous summer training becomes productive quickly.
5. This procedure enables the company to expedite its plan of securing the highest caliber of manpower available for permanent employment.

Producers Told to Buy Chicks Early

AMES, IOWA — Egg producers who buy their chicks as early as possible in 1960 should be able to cash in on a good 1960 egg market before the tide has a chance to turn in the late spring of 1961, Francis Kutish, farm economist, said at Iowa State University.

Egg prices early in 1960 are expected to be nearly as high as those of a year ago. During late spring they should be well above prices received in the same period of 1959. But the improvement of egg prices during the spring and summer of 1960 probably will cause a pickup in demand for chicks later in the season. Thus, the improved egg outlook is expected in early 1961, but some of the "bloom" will be off the egg outlook by late spring of 1961, Mr. Kutish said.

Demand for eggs has been slipping, perhaps because of the slump in the importance of breakfast along with a general change in American food habits, Mr. Kutish said. It takes a lower price to move a given amount of eggs today than it did 15 or 20 years ago, he added. The egg producer, unlike meat producers, can't depend on growing population alone to support the demand for their product.

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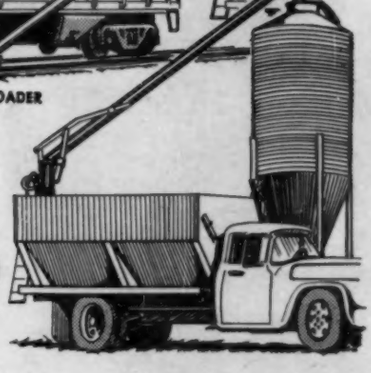

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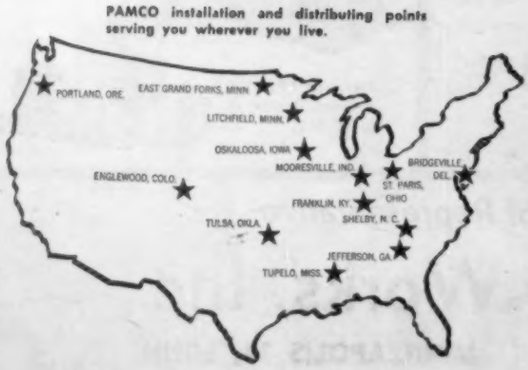

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Problems in Use of Agricultural Chemicals in Production of Livestock and Livestock Products

By George P. Larrick
Commissioner of Food and Drugs

EDITOR'S NOTE: A number of problems in connection with the use of drugs and chemicals in livestock production were discussed by George P. Larrick in a talk at the livestock conference at the annual meeting of the American Farm Bureau Federation in Chicago. Mr. Larrick, who is commissioner of food and drugs, U.S. Department of Health, Education and Welfare, covered such things as penicillin residues in milk, withdrawal of medicated feeds prior to marketing, FDA enforcement problems and stilbestrol. Feed men will be interested in the accompanying text of Mr. Larrick's talk.

For many years we in the Food and Drug Administration have welcomed friendly and productive contacts with Washington representatives of the American Farm Bureau Federation, as well as many Farm Bureau people in other parts of the country.

We haven't been in complete agreement on all subjects, but we have found it possible to work together amicably on difficult problems. And, as a general rule, we have been able to work out satisfactory solutions that are in the interest of farmers and the rest of the public.

When you stop to think about it, that is quite understandable. For the Food and Drug Administration is an organization devoted to protection of the consumers of foods, drugs and cosmetics. Farmers are as dependent as others upon factories for drugs and cosmetics; they are coming to be as dependent for foods as well. It has been quite a few years since the average farm wife dried, canned, preserved and baked almost all the food her family eats.

I was interested in reading recently a statement by Charles B. Shuman, president of the American Farm Bureau Federation, about your views with respect to government. He said, ". . . in recent times the philosophy of the Farm Bureau membership in regard to government and its role in agriculture has remained unchanged. It is based on the conviction that farmers can do more for themselves in cooperation with other farmers than through government action."

This statement seems particularly noteworthy as it relates to the Food and Drug Administration's regulatory control of animal products that move from one state to another. When farmers produce and ship clean, wholesome, properly labeled animal products, we find it necessary to give only minimum attention to their transactions.

There are some areas in which we think you may wish to give increased attention to farm practices in order to insure the production of wholesome food.

Chemical Age

Chemicals have revolutionized agriculture in the past 15 years. In animal husbandry, for example, growth-promoting chemicals permit the production of more meat per pound of feed, drugs eliminate or control such serious diseases as coccidiosis in poultry and pesticides help the farmer control insects that would otherwise seriously affect his livestock. Over 50% of the drugs used by the veterinarian today were not available to him in the early 1940's. Truly, agriculture has entered the chemical age.

In some respects agriculture seems to be at essentially the same point today as the drug industry was in the early 1940's. Until then, drugs had largely been of vegetable origin. A few very potent ones had been synthesized in the laboratory, but the era when drugs could be tailored by chemists to meet specific requirements of the medical profession was just dawning.

Then came the tremendous research of World War II. Extremely active chemicals poured out of research laboratories by the thousands, and many of them showed an uncanny ability, when properly compounded and administered, to accomplish the exact therapeutic benefits doctors had long been seeking.

But we soon learned that these advances brought perils too. The increased potency of drugs made it more essential than ever to have very careful, very exact controls employed in pharmaceutical manufacturing establishments. The physician had to get exactly what he ordered in the exact dosage he ordered.

There were some serious errors. Some stocks of bad drugs had to be taken off the market. The drug industry adopted more stringent controls and these newer, more potent chemicals are now being employed safely.

The research of World War II and later years has produced very potent chemicals for farm use too. Arsenicals for use in poultry and swine feed, stilbestrol for use in beef cattle and sheep, penicillin for use in controlling mastitis and numerous sprays for controlling insects, are examples. The producers of meat, eggs, poultry and milk must employ adequate controls if they are to continue to use these toxic chemicals. A few examples will illustrate the point.

Residues in Milk

Some years ago when DDT was first used to control flies on cows and in dairy barns, we found that its use contributed DDT residues to milk. Several other chlorinated hydrocarbons will also contribute residues to milk when sprayed on the cow or when present in her feed. When penicillin is infused into the cow's udder to treat mastitis, it is excreted with the milk for a period of time. Several surveys conducted by the Food and Drug Administration have shown penicillin and chlorinated hydrocarbons in market milk.

For several years, in cooperation with the Extension Service of the U.S. Department of Agriculture, the National Milk Producers Federation, various state organizations and others, we have been engaged in a widespread program of education of the dairy farmer in an effort to remedy the situation. We have urged that DDT not be used around dairy barns or dairy cattle. We have urged that it and other related pesticides be used only in accordance with the label directions registered by USDA—directions which, if followed, will avoid pesticide residues in milk. We have limited the amount of penicillin contained in an individual dose of infusion for treating mastitis. We have amended the regulations to require more conspicuous directions and warnings on mastitis preparations. In cooperation with the agencies mentioned earlier, we have tried to get across to dairymen the fact that it is necessary to discard milk from treated animals for an appropriate time following the last application of penicillin.

Our latest surveys show improvement. But market milk still contains penicillin and pesticide residues. Two years ago an advisory committee selected by the National Research Council studied a proposal that we establish tolerances for minute residues of one pesticide in milk. It concluded that the chemical should not be allowed in this important food. The council on drugs of the American Medical Assn. has called upon the Food and Drug Administration to get penicillin out of milk.

In view of all the facts, we found it necessary last October to start an enforcement program which will lead to legal actions where we find penicillin or pesticides in milk shipped across state lines. As yet there have been no legal actions, possibly because almost our entire field force has been preoccupied with the cranberry problem. We expect to devote more attention to milk in the near future.

Medicated Feed Withdrawal

A number of the drugs used in animal husbandry must be applied with care to avoid excessive residues. They must be given in proper amount. Implants must be made in the proper part of the body. In many cases there must be the proper interval of time between the last administration of the drug and slaughter. This is particularly true for medicated feeds.

More than 2,500 new drug applications are in effect for veterinary drugs that require an appropriate withdrawal time before slaughter of the animals, and an unknown number of other drugs—not new drugs—are on the market, which require comparable precautions.

Limited investigations we have made indicate that some poultry raisers do not observe recommended withdrawal periods in using medicated feeds. A letter which I received from a personal friend, formerly a livestock producer, indicates that a similar situation exists, at least in his area in the feeding of swine. He writes:

"You may be interested in knowing that hog concentrate is being sold to hog feeders with arsanilic acid added. On account of this addition and what they know about it, it shows on the feed tag that this concentrate should not be fed to hogs five days prior to marketing. As near as I can find out, just about 100% of all of the farmers that raise and sell hogs pay no attention whatever to this five-day thing. I doubt if they are sufficiently impressed to take a hog off of such feed for five days when they are butchering it for themselves. There is no use to have a regulation such as the one on arsanilic acid when it is impractical and where the facts are that no one pays any attention to it."

Safeguards

When a society adopts the philosophy that farmers should be allowed to use poisons in the production of meat, milk and eggs for the technological benefits that flow from their use, it is essential that appropriate safeguards be placed around the practice. Certainly one safeguard that must be observed is that the hundreds of thousands of growers shall administer the chemicals properly to avoid poisoning the food supply.

Another essential safeguard is that enforcement agencies must have a practical analytical procedure for determining whether the finished food on the market contains excessive residues of toxic materials.

We have recently studied a new drug application for a veterinary injection containing three hormones to stimulate growth of meat animals. There is an analytical procedure for measuring one of the hormones in meat. It is time-consuming and obviously would not be practical for use in a commercial slaughter house. And there is no analytical method for determining what quantities of the other two hormones might be present in market meat. We rejected this application, and would have to reject others under similar circumstances.

A third essential safeguard is that there must be adequate facilities to enforce the rules permitting toxic chemicals to be used. There is a gap here in the regulation of drugs and other chemicals used on farm animals. Rules that specify safe conditions for using toxic materials do not by themselves safeguard public health. You don't insure driving within safe speed limits simply by establishing the speed limits.

Enforcement Problem

In the food and drug field, provisions for rule making outdistance provisions for rule enforcing.

Under the Federal Food, Drug and Cosmetic Act:

- We are required to allow new drug applications to become effective for safe uses of new veterinary drugs.
- We are required to allow antibiotics to be employed in animal husbandry when the evidence shows that, if proposed directions are followed, the products are safe and efficacious.
- We are required to establish safe tolerances for pesticides in or on crops when the evidence shows that the proposed conditions of use will yield residues within these tolerances.
- We are required to establish conditions under which food additives may safely be employed in food handling and processing.

And under the Federal Insecticide, Fungicide and Rodenticide Act, USDA is required to register labels for pesticides (economic poisons) when the evidence presented by an applicant indicates that use of the poison according to label directions will accomplish the intended purpose, will protect the person applying it and will not give residues in excess of tolerances established by the Food and Drug Administration.

In none of these cases are we or USDA authorized to withhold approval (sanction or registration) until we have sufficient funds and staff to deal with the extra enforcement burden. Yet every time a new approval is given for a poison employed on food, there is an added enforcement load.

The fact that USDA or the Food and Drug Administration has reservations about the extent to which users will observe label restrictions on a food additive, pesticide or drug, ordinarily does not afford a basis for denying an applicant the right to promote his product. The fact that under our scheme of government it may be from one to several years before we can get funds and manpower to do an effective job of enforcing the new rule has no bearing either.

We must be in a position to assure the public it is receiving adequate protection. Enforcement of the pure food and related laws must keep pace with rule making. This is a matter that deserves careful consideration by all of us. There are a number of possible solutions—one would be to change the laws to provide that the Department of Agriculture and the Department of Health, Education and Welfare shall not allow a new use of a toxic chemical in production or processing of food unless there is an affirmative showing that facilities are available for determining that it is properly employed and does not poison the food. Perhaps there are other solutions. We have not yet decided what

recommendation to make to our department in this matter. We hope you can contribute materially to the solution.

Stilbestrol

When new drug applications were first presented to us proposing the use of stilbestrol implants in poultry, we believed that there would be no residues in edible tissues of treated birds when they were marketed. We sanctioned use of the implants.

Using better analytical procedures, our scientists found later that approved uses of stilbestrol in poultry leave minute residues in the skin, livers and kidneys of the birds. Stilbestrol produces cancers when fed to test animals.

Since the presence of such a cancer-producer in market poultry constitutes some risk, we asked:

1. The drug industry to stop producing stilbestrol for use in poultry.
2. Poultry producers to stop slaughtering treated birds.
3. Poultry distributors to stop marketing treated birds.

Some people ask why it is necessary to worry about stilbestrol in poultry when the residues occur only in parts per billion. We explored this matter with competent scientists. They tell us that when a chemical produces cancer in test animals by feeding, there is no known method of determining what quantity of that chemical may produce cancer when fed to man. Some day science may learn how to establish a safe feeding level for a cancer-producer, but it does not have the answer now. Until it gets the answer we must insist that no residues of such cancer-producers be added to food. This is the principle of the Delaney cancer clause of the food additives amendment to the Food, Drug and Cosmetic Act.

We have no evidence that approved uses of stilbestrol in beef animals or sheep leave any detectable residue in meat from the treated animals. I should emphasize, however, that it is again essential for the user to follow very carefully the approved directions for use. Stilbestrol pellets are allowed for implantation in the ears of beef animals. Obviously, if pellets are implanted in the neck or some other part of the body normally used for food, then pellet residues could contaminate market meat.

FIRM INCORPORATED

DOUGLAS, GA.—E. E. McNeal, Pearson, and E. C. Clark and G. W. Stovall, Douglas, have obtained a charter to operate a trucking concern here under the name of C & S Express, Inc. The company will transport poultry, poultry products and feeds.

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St. Regis Announces Bag Unit Appointments

NEW YORK—St. Regis Paper Co. has announced a number of appointments in its bag division.

John T. Walton has been appointed manager of marketing services and is responsible for the planning and administrative functions of the division. Mr. Walton was formerly manager of domestic licensee relations.

Other marketing services appointments include: Donald R. Russell, multiwall product manager; Austin J. Hare, textiles product manager; Lewis H. Merrill, pricing administrator, and Carroll D. McCabe, Jr., marketing measurement administrator.

Alfred A. Roetzer has been named general manager of packaging services for the division. In this position, he is responsible for coordination with the engineering and machine division in the development of new packaging equipment products. Mr. Roetzer was formerly sales manager of packaging equipment.

Other packaging services appointments include: John H. Dively, assistant general manager; Walter D. Wright, Jr., staff engineer, fertilizer packaging; Joseph A. Fioretti, staff engineer, materials handling; Carl W. Olson, staff engineer, sales promotion and training, and Harry D. O'Neal, staff engineer, packer and materials testing.

James Wipper has been named division comptroller and is responsible for the administration of the financial policy and coordination of accounting procedures of the division. Mr. Wipper formerly handled manufacturing costs and reports within the comptroller's office.

Water Shortage Hits San Joaquin Barley

FRESNO, CAL.—A shortage of water in southern San Joaquin Valley is expected to bring about a $4 million loss in barley for cattle feed. An estimated 50,000 acres normally planted to barley will be left idle, which means the barley crop will be 100,000 tons under the volume anticipated.

It was reported that an even greater area would have been taken out of barley production had not a few growers refused to enter a voluntary agreement which would have shut down all water pumps in the area around Huron, in Fresno County, in October. Several growers who had not yet planted barley were said to be considering joining the movement.

Even though the water shortage is of considerable magnitude, loss of the 100,000 tons of barley is not expected to create a feed shortage. California produced 1.6 million tons last year, and much of that tonnage was exported. It could be, however, that reduction of the barley acreage will result in some corn and milo being imported from Texas.

Frank Moradian, Fresno feed and grain dealer, said the cost of pumping water has increased to the point that farmers can no longer afford to grow feed crops such as barley. The 1959 drouth caused farmers on the east side of the valley to abandon their barley-planting plans. And the decline of the water level on the west side over a period of years is expected to affect that area, which is the bigger producing center.

Amburo Named Urea Compound Distributor

PHILADELPHIA—Amburgo Co., Inc., Philadelphia, has been appointed a distributor for Grace Micro-Prilled Urea Feed Compound, according to the chemical division of W. R. Grace & Co.

Amburgo will handle the product in the New England and middle Atlantic states.

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PLAQUES FOR FARM YOUTHS—Harry P. Heuer, president, Peter Hand Foundation, Chicago, presents plaques of recognition to two prize-winning farm youths—Arthur Grochowski, 16, Neshkoro, Wis., and Judy Rodger, 16, Montello, Wis. Both were brought to Chicago with their parents as guests of Peter Hand to attend the International Livestock Exposition and to tour the foundation's feed supplement plant. Marquette County, Wisconsin, selected Judy as its 4-H "Achievement Girl" and Arthur as its leading Future Farmers of America representative.

Lamb Grading Service Suspension Withheld

WASHINGTON—The U.S. Department of Agriculture announced that the plan to suspend federal grading service for lamb and mutton would not go into effect Jan. 4 as previously announced.

Decision on this matter is being withheld for a period up to one month (not later than Feb. 8) respecting the request of the chairman of the House agriculture committee, Harold D. Cooley, to permit his committee an opportunity to become more fully acquainted with the problem.

Department officials have met with a large number of producer, packer and consumer representatives on the problem. Hearings also were held during 1959 by a subcommittee of the House agriculture committee and by the House small business committee.

Requests by a number of organizations for the termination of federal lamb grading caused the department to consider the need for grading of this product. As a result of the study and hearings, new lamb grade standards were developed to meet more adequately the needs of the sheep industry. However, the new proposed standards met with a lack of agreement in the industry. The proposed standards provided modifications of existing standards and were substantially in line with suggestions made by lamb producers and market representatives.

The question of suspension of the voluntary lamb grading service should not be confused with the mandatory meat inspection program of the department which provides inspection for sanitation and wholesomeness. Grading is an entirely separate activity from meat inspection.

North Dakota Poultry Convention Planned

BISMARCK, N.D.—The 13th annual North Dakota Poultry Industries convention will be held at the Elks Club in Fargo, Jan. 19-20, according to David Dickens, executive secretary, North Dakota Poultry Improvement Board, Bismarck.

Program plans Jan. 19 include a talk on, "What's New in Poultry Marketing," by Lloyd M. Johnson, director of Frozen Foods Super Valu Stores, Inc., Minneapolis.

A reorganizational meeting of the North Dakota Retail Feed Assn. will be held Jan. 20. Also planned are a North Dakota Turkey Federation directors meeting at the Gardner Hotel, and a talk at Convention Hall on, "Chickens—How You Gonna Keep 'em Down on the Farm," by Dr. H. R. Bird, chairman of the poultry department, University of Wisconsin.

Cattle Shipments into Corn Belt Increase

WASHINGTON — Shipments of stocker and feeder cattle and calves and sheep and lambs into nine selected north central states during November, 1959, were up 13% from the same month the previous year, the U.S. Department of Agriculture reports.

Inspected shipments of stocker and feeder cattle and calves from public stockyards during November increased 20% from November, 1958. Inspected shipments of stocker and feeder sheep and lambs rose 21%.

Stocker and feeder cattle and calves shipped totaled 1,015,849 head compared with 896,997 head during November, 1958. Of the total cattle and calves, 376,801 head came through public stockyards and 639,048 were received direct.

The number of cattle and calves shipped during the period July-November amounted to 3,793,970 head compared with 3,597,453 for the same period in 1958—an increase of 5%.

Sheep and lambs shipped in November totaled 250,385 head compared with 222,254 head during November a year earlier. Of the total sheep and lambs shipped during November, 108,614 moved through public stockyards and 141,771 were received direct.

The July-November number of sheep and lambs shipped into these nine states totaled 1,992,776 head compared with 2,044,873 head during the same period a year earlier—a decrease of 3%.

Inspected shipments of stocker and feeder cattle and calves from public stockyards during November totaled 764,864 head compared with 639,596 head during November, 1958.

Total inspected shipments of stocker and feeder sheep and lambs from public stockyards were 261,120 head this November compared with 215,702 head in November, 1958.

Feed Sales Down

ARTESIA, N.M.—The sale of feed for range cattle is down considerably from some winters, according to feed dealers. Ranchers still are lightly stocked in southeastern New Mexico, and hope to pull livestock through on grass, although a few are feeding a small amount of protein.

Cattle owners who have ranches on the mountains are buying more feed than others because of colder weather. Local alfalfa dealers report the sale of alfalfa hay to some cattlemen, but say the demand has not been too great yet.

The area has experienced very little cold weather yet and practically no snow. Wet, cold weather would increase feed sales, local feed dealers say.

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Feed Pelleting and Its Effects on Micro-Ingredients

By Robert C. Wornick
Chas. Pfizer & Co., Inc.

INTRODUCTION — Feed pelleting today has become an operation fully as important as feed mixing. Notwithstanding this, a literature survey on pelleting and its effects on micro-ingredients revealed practically no published data. Discussions with feed manufacturers and manufacturers of pelleting machinery indicated a surprising lack of information on pelleting process variables. It was the author's belief that a clearer knowledge of process variables would be a great aid in interpreting effects on micro-ingredients.

The extent to which pelleting has grown is shown by an over-all figure of 56% of all manufactured feed thus processed as determined from the survey conducted in preparation of this report. This corresponds to an annual volume of over 22 million tons. In some mills, the combined output of pellets, crumbles and cubes is now over 80% of total feed produced.

EXTENT OF PELLETING — For the present report, it was felt desirable to try to determine the percentages of each type of feed now produced as pellets and crumbles. The production figures contributed by each company were then tabulated. The percentages for each type of feed were weighted in accordance with the estimated annual tonnage produced by the company. Since accurate tonnage figures were not available, the resulting calculated average U. S. percentages must be considered only as approximations. Table 1 shows these calculated average U.S. percentages. Also shown under "range," are the highest and lowest individual company production percentages reported. Cattle and sheep cubes were considered as "pellets" in this tabulation.

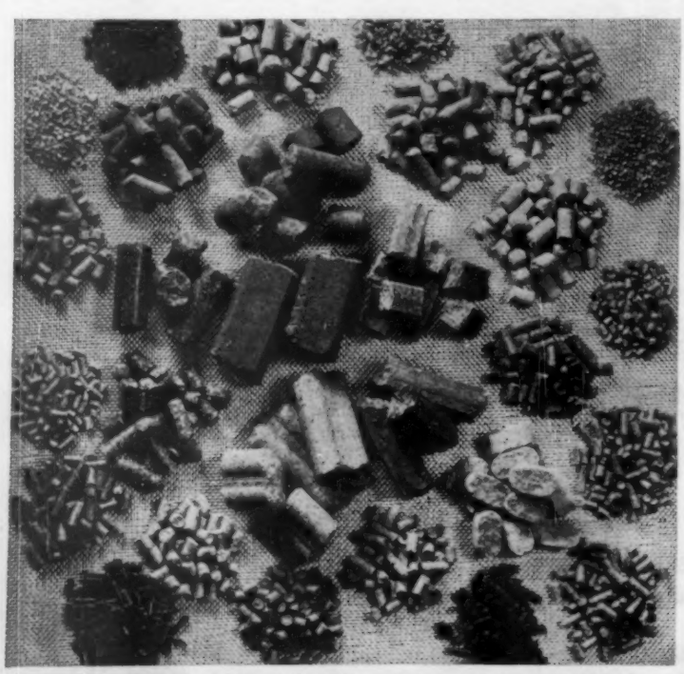
EDITOR'S NOTE: This article on feed pelleting and its effects on micro-ingredients was condensed by the author from material presented at the 1959 Feed Production School in Kansas City. Mr. Wornick is head of the chemical laboratories at the agricultural research and development center of Chas. Pfizer & Co., Inc., Terre Haute, Ind.

MICRO-INGREDIENTS—Remarkable advances have been made in the fields of animal nutrition and veterinary medicine in the past decade. These advances have resulted in the development of many new feed additives which improve rate of gain and feed conversion, and which combat many diseases. The wide use of antibiotics, vitamin B_{12} and other additives in recent years has been the subject of an interesting and comprehensive government report (1). Today most commercial feed formulas contain from 20 to 30 different micro-ingredients. Over 150 different micro-ingredients are approved (2) for use in today's modern feeds.

TABLE 1. U.S. Pelleting Volume Computed from Survey

Type of Feed	—% Pellets— Average %	Range %	—% Crumbles— Average %	Range %	—% Mash— Average %	Range %
Broiler	35	0- 72	43	5-100	22	0-75
Layer	14	0- 35	40	2-100	46	0-77
Turkey	40	0- 90	17	0-100	23	0-98
Swine	60	2-100	..	....	40	0-98
Beef	56	2-100	..	....	44	0-99
Dairy	20	0-100	..	....	80	0-96
Sheep	95	45-100	..	....	5	0-55
Other*	70	5-100	..	....	30	0-95

*Includes rabbit, duck, fish, fur bearers, dog, lab. animals, etc.



PELLETS—Pictured are 29 of the different sizes and shapes in which pellets are made.

It was impossible to locate or develop data on every category of micro-ingredients. The data presented in this report are therefore confined to vitamins, antibiotics and drugs. However, it is emphasized that additives in other categories are fully as important and may exhibit equal or greater sensitivity to commercial pelleting. Several micro-ingredients are sensitive pharmaceuticals which require care in processing to insure optimum feeding results.

PELLETING PROCESS VARIABLES—The very nature of feed pelleting seems to render it almost immune to precision and standardization. The operation itself might be considered a variable since it is generally very difficult to duplicate conditions and results from day to day, and sometimes even from run to run. Some of the major variables in feed pelleting are listed in Table 2. There are, of course, others peculiar to specific operations.

A. Mash Uniformity—This problem is sometimes overlooked by certain feed manufacturers. Feed products to be sold in mash form are generally formulated and handled very carefully to insure uniformity. However, if the mash is to be pelleted, specifications are sometimes relaxed so that non-uniform pellets and crumbles result. Some non-uniformity may not always lead to a serious nutritional problem for hogs and cattle, since the relatively high daily feed consumption may tend to even out the effects of variability in composition. However, non-uniformity of pellets and crumbles may well be critical for chicks, poults and other small animals having very low daily feed intakes. Lack of complaints from feeders is no guarantee of product quality. The difference between "average" and "good" performance may not always be detectable by a customer.

Some factors causing non-uniform mash are: (1) Wide variation in particle size and density of ingredients; (2) vibration and sifting during conveying and handling, (3) static electricity problems, (4) insufficient micro-ingredient particles per gram of mash, (5) incomplete mixing, (6) incorrect performance of automatic feeders, (7) inadequate sampling and/or assay methods.

It is readily apparent that assays, stability data and feeding results can be extremely misleading if non-uniformity in the meal is not carefully eliminated as a variable. The finished pellets are seldom more uniform than the original mash. Appropriate milling of bulk ingredients and adequate premixing of micro-ingredients are generally helpful. The use of fat, molasses, fish solubles, etc. serves as a "sticking agent" to help retard sifting. Sampling and assay methods must be specifically adapted to the characteristics of the specific product in question.

B. Mash Conditioning — Although this does not apply to steamless pellet mills, it is important in the other types of equipment. Moisture is added in varying amounts to most feed before pelleting. The survey questionnaires revealed the information on steaming shown in Table 3.

It is known that chemical reactions proceed more rapidly in solutions than between dry ingredients. Many micro-ingredients tend to absorb moisture films on the surface of their particles. This occurs in moist air and in normal feed mixtures. The amount of water adsorbed is a function of vapor pressure or "inter-granular humidity" between the feed particles. It is believed that a few additives may preferentially remove some of the moisture from adjacent cereal particles in feed blends.

Robert C. Wornick

It is apparent that increasing the moisture content of feed products, by steaming or otherwise, will accelerate the decomposition of sensitive micro-ingredients. High production rates and rapid moisture removal from cooled pellets probably do not prevent decomposition since the moisture adsorption and dissolution of additive particles is believed to be irreversible.

C. Pelleting Temperatures—Many feed manufacturers think of pelleting temperatures only in terms of the temperature exhibited by the hot pellets as they leave the die. Obviously, there are other aspects to this problem. This has become increasingly important in view of the pronounced trend in the past few years to the use of thicker dies and higher conditioning and pelleting temperatures. In the absence of data from other sources, information was requested in the survey questionnaires. It was surprising to learn that many companies had no information on temperatures.

Animal fats, stabilizing wax coat-

TABLE 2. Pelleting Process Variables

Feed composition	Operator experience
Feed texture	Pelleting pressure in die
Mash uniformity	Pelleting temperatures
Ingredient particle sizes	Time feed is in die
Steam temperature	Equipment used
Steam pressure	Die condition
Steaming rate	Pellet size
Ambient conditions	Fines recycled

TABLE 3. Moisture Added to Mash During Conditioning

	Average	Range
Minimum	1.3%	0- 5%
Maximum	4.9%	1.5-10%

TABLE 4. Temperatures During Pelleting—°F.

Location	Maximum Average	Maximum Range	Minimum Average	Minimum Range
Instantaneous in die, estimated	242	170-600	...	...
Steamed mash	183	120-250	113	R.T.*-160
Hot pellets	199	140-400	143	100-185

*Room temperature

TABLE 5. Melting Points—°F.

Vitamin A palmitate	82- 84	Menadione	221-224
Animal fat, hydrog.	155-160	Vitamin C	342-345
Vitamin D_3	183-185	Cal. pantothenate	351-354
Paraffin waxes	190-195	Niacin	426-427
Procaine penicillin	220-225	Riboflavin	504-508

TABLE 6. Fines Recycled in Pelleting

Location	Minimum Average %	Minimum Range %	Maximum Average %	Maximum Range %
Pellet mill and cooler	5	1-10	16	2-35
Crumbling rolls	11	2-25	27	4-50
Conveyors, bins and packers	2	½-10	11	1-40
Totals	18		54	

ings and several micro-ingredients will melt under these elevated temperature conditions (Table 4). Table 5 lists the approximate melting points of several additives for reference purposes. Many substances are known to be most unstable near their melting point.

The trend to higher steaming rates and pelleting temperatures explains, in part, why many feed manufacturers are experiencing greater stability problems today than they did three to five years ago.

D. Pelleting Pressure—Today's modern pellet mill dies are designed to withstand about 150,000 p.s.i. tensile stress before failure. Earlier dies probably withstood only about 100,000 p.s.i. The fact that dies of both types have occasionally failed proves that the pelleting process is capable of exerting tremendous pressures in and on the die. If we assume a factor of safety of 5 to 10, then the normal day-to-day working pressures in the die are about 10,000-30,000 p.s.i. This seems to be a reasonable range.

The use of such high pressures causes deformation and/or crushing of friable materials such as crystalline micro-ingredients. Softer wax and stabilized fat beadlets are obliterated. Reduced particle size increases the exposed surface area of ingredients with resultant greater susceptibility to decomposition. Furthermore, the compression simultaneously places sensitive additives in more intimate contact with other incompatible ingredients. The existence of such high pressures, combined with elevated temperatures and added moisture, begins to explain the stability problems that are encountered.

E. Feed Time in Die—It has already been established that high temperatures, pressures and moisture values exist in feed while it is inside the pellet mill die. The next pertinent question is how long the feed is actually in the die subjected to these severe conditions. Here again no data could be found on this subject. Most feed manufacturers believe total residence time inside the die is "instantaneous" or "a fraction of a second."

We attempted to calculate this residence time interval. From these calculations, a simplified equation is presented for computing "t," the number of seconds required for a particle of feed to pass through the pellet mill die.

$$t = \frac{0.004 \times N \times G}{W}$$

N = Number of holes in die.
G = Weight in grams of one feed plug having a length equal to die thickness.
W = Pellet production rate in tons/Hour at the die.

It can be seen immediately that the critical factors governing feed passage rate through the die are production rate, number of holes in die and die thickness. As production rate increases, feed residence time in the die will fall. Conversely, the use of thicker dies, and/or dies with more holes, retards feed passage rates on a given mill if production is held constant.

The trend in recent years has been away from thin, narrow dies to thicker, wider models. Unless production rates can be raised in direct proportion to increases in thickness and number of holes, the retention time is invariably increased. The significance of this factor in pellet production is not well enough appreciated. A holding time in the die of several seconds appears to be the rule, rather than the widely accepted "fraction of a second."

F. Recycling of Fines—Fines produced anywhere in the process stream are expensive, since they greatly reduce production rates. In addition, the repeated steaming and compression-temperature effects aggravate existing stability problems. The importance of minimizing fines is therefore apparent.

It was thought desirable to obtain data on this subject in order better to appraise the effects of fines on micro-ingredients. The only known information was that obtained in this survey. (Table 6.)

Many manufacturers had no information on this phase of their pelleting operations. It seems logical to predict that in many feed mills today 10-15% of each pelleted batch or run is recycled before packaging. Similarly, about 30-35% of each crumblized batch or run is probably recycled and repelleted. This is certainly a fertile area for research to raise production and lower costs.

PELLET STORAGE PERIODS — In order to establish meaningful specifications for micro-ingredient stability and to properly interpret stability test results, it is essential to know the expected life of each specific type of feed. Most feed manufacturers know how long various feeds are held in their own warehouses. A much smaller number, however, were able to estimate how long their feeds are held by the individual dealer before they are finally sold. (Table 7.) The greatest difficulty centers on trying to predict, with accuracy, just how long the feed is held by the ultimate purchaser before it is completely consumed.

Minimum total holding time for all types averaged 0-3 weeks.

Most feed manufacturers in the survey emphasized the uncertainty of their estimates. The rather wide ranges point up how uncontrollable feed storage times are. Based on the above data and the author's personal experience, it would seem desirable to require adequate micro-ingredient stability for at least two months in any feed formula. To cope with unexpectedly long holding periods, it would not be unreasonable to adjust formulas to insure three months stability. Our stability data have been developed with these feed industry requirements in mind.

PELLETING MICRO-INGREDIENT SOURCES—Less widely known are the beneficial effects of pelleting on the undiluted micro-ingredient sources. Many additives may possess undesirable characteristics due to inherent physical or chemical properties. Occasionally, the manufacturing processes employed will also cause poor physical properties. Ingredient manufacturers have evaluated pelleting on many products. The results often include reduced hygroscopicity, elimination of static electricity problems, improved flow properties, decreased dust losses, better performance in automatic feeders, more ef-

TABLE 7. Estimated Maximum Pellet Storage Times—Weeks*

	Broiler	Layer	Turkey	Swine
Average	5	7	6	9
Range	2-14	2-15	2-15	3-25
	Beef	Dairy	Sheep	Other
Average	9	8	10	14
Range	3-24	3-15	4-24	4-24

*Includes time in warehouse, at dealer and on farm until fed.

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TABLE 8. Test Manufacturing Data

Batch Size—1,000 lb.
Feed Mixer—1-ton capacity, vertical screw-type.
Premix Size—1% of batch, minimum.
Mixing Cycle—15 minutes.
Pellet Mill—California "Century" model, 50 H.P.
Pellet Mill and Die—Thoroughly pre-heated before use by a prior run.
Die Specifications—2¼" thick, 2464 holes, 3/16" diameter.
Production Rate—3 tons/hr. at 160 R.P.M.
Steam Pressure—80-90 p.s.i.g.
Temperature and Moisture—Recorded at every step.
Pellet Cooler—California Model 2-A-2, vertical, 1-ton capacity.
Pellet Sifter—B. F. Gump "Bar-Nun" sifter.
Fines—Separated and weight recorded; none recycled.
Assays—Conducted within 12-24 hours and again after storage.

ficient mixing and less caking difficulties.

A few pelleted micro-ingredient sources are already on the market. Factors such as pelleting difficulties, stability and cost have combined to retard wider use of this operation. However, research is continuing and may result in new product applications in the future.

PELLETING TEST CONDITIONS

A. Feed Composition—It has long been recognized in the feed industry that composition of the mash exerts a profound effect on production volume, die wear, fines produced, pellet hardness, steaming required, etc. Our own data showed that micro-ingredient stability was also strongly affected. A simplified broiler diet was therefore selected and employed in all further tests in our laboratories. Identical grinds of each bulk ingredient were used as far as possible. It should be understood that this ration was used only in experimental studies to aid reproducibility. Dozens of tests on commercial feed formulas were also conducted separately.

B. Manufacturing Conditions—In view of the numerous variables which influence pelleting as previously discussed, it was essential to attempt further standardization of test conditions. Simply employing the identical feed formula was only a beginning step. As many other variables as possible were eliminated. All our tests over the past six years were conducted on a commercial scale in a nearby feed mill using the same procedures and equipment as outlined in Table 8.

TABLE 9. Vitamin A Stability in Broiler Pellets

Vitamin A source	Number of batches tested	—Room temperature— potency retention* 30 days %	90 days %	90-Day range %
Pfizer A-250-P	24	86	73	57-93
Dry A No. 1	5	84	66	47-82
Dry A No. 2	2	78	53	50-55
Dry A No. 3	1	77	48	48
Dry A No. 4	2	67	35	33-37
Dry A No. 5	2	81	58	58
Dry A No. 6	1	81	67	67
Vitamin A oils	4	63	24	15-36

*Note: Feed was supplemented to contain 10,000 U.S.P. units/ lb. Initial pelleting losses were not significant. Assay precision ±8%.

C. Laboratory vs. Plant Scale Tests—The use of commercial scale pelleting tests in evaluating new and existing products is slow and expensive. The search has been long and continuous in many laboratories for a "quick test to simulate pelleting." A number of approaches have been suggested and are in limited use today. These include accelerated temperatures, high humidities, autoclaving, steaming, adding water to the sample, incorporating high mineral levels, etc.

None of these can be considered equivalent to commercial pelleting. When properly interpreted, such tests may sometimes be useful for initial screening purposes. However, in our experience over the years, the ultimate criterion has always been performance in feeds pelleted under commercial conditions. Recently, a number of laboratory-size pellet mills have become available. Whether such equipment will duplicate results from plant scale pellet mills must be determined in each individual application. To date, there are no known data available on such correlation.

MICRO-INGREDIENT STABILITY

A. Fat-Soluble Vitamins—Because of the sensitivity and relative ease of the assay method, the stability of vitamin A has probably been studied more than any other vitamin. The technical literature contains many reports on the destructive effects of moisture, oxidation, acid pH values, minerals, elevated temperatures, etc., on vitamin A. In view of the severe conditions imposed during feed pelleting, it is not surprising to find stability problems with various vitamin A sources.

The results of five years of our commercial pelleting tests on various vitamin A sources are given in Table 9. Conditions in all tests were as outlined. Because of these elaborate precautions, we believe the average results are meaningful. The

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data shown are taken in part from another recent publication (3).

It must be emphasized that the averages tabulated above apply to only one feed, produced in one mill under a fixed set of conditions. Absolute values for potency retention will vary with other feeds and other equipment. However, we feel that the trends and relationships are significant. All of the vitamin A sources tested are commercially available and are sold specifically for feed use. It is emphasized again that our results are based on no recycling of fines, which is obviously less severe than normal commercial practice.

The entire fat-soluble vitamin group is sensitive to oxidation, temperature, moisture, minerals, etc. Consequently, it seems reasonable to predict that vitamin D, vitamin E as naturally occurring tocopherols, and vitamin K will be unstable under conditions which decompose vitamin A. It appears that we must await further research on analytical methods before much stability data on vitamin D, E and K will be available on mash and pelleted feeds.

B. Water-Soluble Vitamins—The members of this group vary widely in feed and pellet stability. One might predict that feed moisture and steaming would be generally detrimental to water-soluble vitamins. Fortunately, this is not the case. Little detailed data could be located on water-soluble vitamin stability in meal and pellets.

In general, choline and choline chloride appear to be completely stable under most normal processing conditions. This also applies to niacin (nicotinic acid) and its amide. There are no known data to date confirming the existence of stability problems with these two vitamins in mash or pellets.

In the case of riboflavin, scattered information is variable. This is no doubt due in part to the inherent error in the present microbiological

(Turn to page 24)

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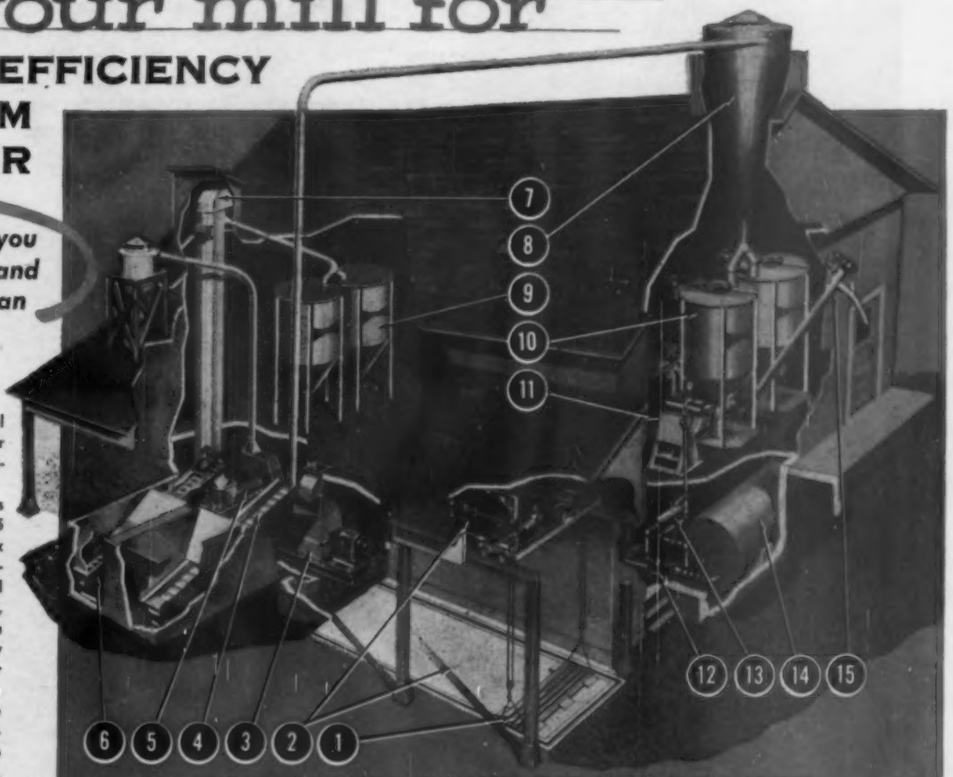

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Experiments show Aureomycin cuts losses

The use of AUREOMYCIN as a preventive for vibrionic abortion in sheep has been investigated for a period of two years by the Idaho Agricultural Experiment Station. Two experiments were conducted in 1957 and 1958. Each experiment started seven weeks prior to lambing and two lots of ewes were used in each. One group received no AUREOMYCIN. The other group received AUREOMYCIN at the rate of 80 mg. per ewe per day. Twelve days after the start of the experiments, all ewes were infected experimentally with vibriosis. Results are shown in the following tables:

Experiment I

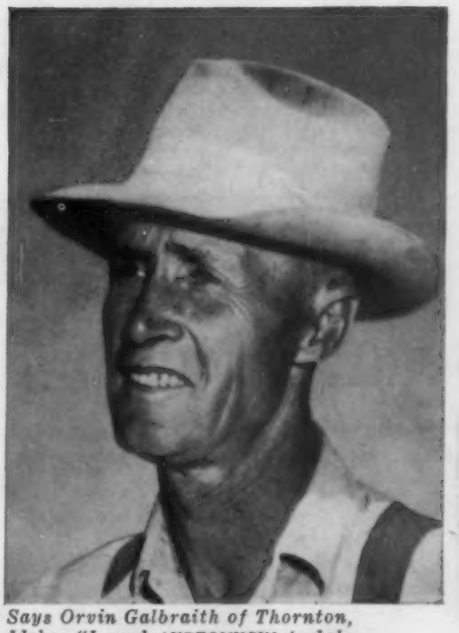
	Lot No. 1 Without AUREOMYCIN	Lot No. 2 With AUREOMYCIN
Number pregnant ewes	18	17
Normal lambings	7	14
Abortions	11 (61%)	3 (18%)

Experiment II

	Lot No. 1 Without AUREOMYCIN	Lot No. 2 With AUREOMYCIN
Number pregnant ewes	21	20
Normal lambings	6	17
Abortions	15 (71%)	3 (18%)

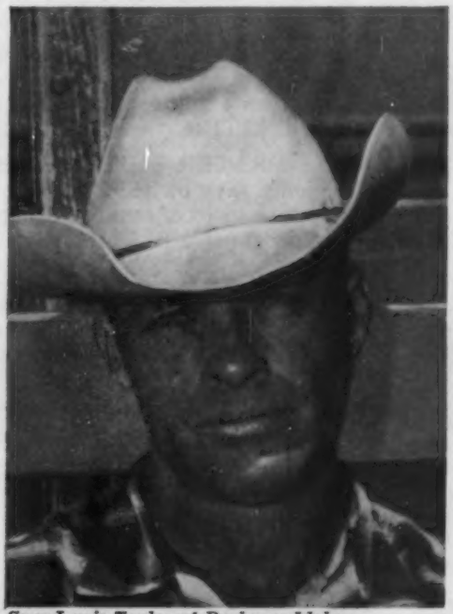
In reporting these results to the Idaho Wool Growers Association, the investigators said: "In evaluating these results, it should be remembered that every ewe was inoculated with a massive dose of the infectious agent. This severe exposure would rarely occur under field conditions. This suggests that antibiotic feeding will be even more effective in actual field use than these results indicate."

If you are a feed manufacturer serving an area where vibriosis is a costly problem, offer your customers this new way to cut losses. Make a feed that will furnish the recommended level of AUREOMYCIN. Write for more detailed information on the experiments conducted with AUREOMYCIN in the control of vibriosis. American Cyanamid Company, Agricultural Division, New York 20, N. Y. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*



Says Orvin Galbraith of Thornton, Idaho: "I used AUREOMYCIN to help control vibriosis. Because of AUREOMYCIN, I turned out 135 lambs for every 100 ewes. In 1951 when we had vibriosis and didn't use AUREOMYCIN, we got only 50 lambs per 100 ewes."

Says Bill Siddoway of St. Anthony, Idaho: "With AUREOMYCIN, our ewe losses have been reduced 50% — abortions cut to a minimum. Lambs are healthier. Reduction in ewe losses alone more than paid for the cost of AUREOMYCIN."



Says Lewis Taylor of Rexburg, Idaho: "This year, with the use of AUREOMYCIN, we reduced our ewe death losses 70%. We had bigger and stronger lambs with minimum losses from vibriosis"

Says Dick Egbert of Tetonia, Idaho: "AUREOMYCIN brought our infection troubles almost to a standstill. It eliminated three-fourths of all death losses in ewes and lambs."

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TABLE 10. Procaine Penicillin Stability in Broiler Pellets (4)

Test No.	Penicillin Source	30 Days Retention* Mash %	Pellets %
4.7-7	54002	61	18
	Product A-1	79	33
4.7-10	40657	91	78
	Product B-1	56	26
4.7-11	Product A-3	84	80
	Product B-2	57	21

*Room temperature storage; assay precision ±10%.

assay. Work is still in progress to improve the fluorometric method for feed use. This should aid in developing reliable data. In general, it can be said that reducing substances and alkaline pH ranges are destructive to riboflavin. Some minerals may also have a role in its decomposition. Since specific feed formulas may present occasional problems with riboflavin stability, assays should be conducted to discover and correct these.

Calcium pantothenate is known to be unstable to moisture, acid pH values and elevated temperatures. This is a problem in pharmaceuticals and may be more of a problem in feeds than is generally realized. Here again, assay difficulties probably explain the lack of feed stability data on this important B-vitamin. More research is needed in this area. Meanwhile, it would seem desirable to incorporate sufficient overages in critical feed formulas being pelleted.

Vitamin B_{12} has shown poor to good stability in mash and pellets depending on the specific B_{12} source and assay method used. At normal feed levels of only a few milligrams per ton, existing microbiological methods may show variation exceeding ±20%. This probably explains the absence of detailed feed stability data. In general, cyanocobalamin is recognized now as the most stable form for pharmaceutical and feed use. Materials such as ferrous sulfate and vitamin C have been reported to accelerate vitamin B_{12} decomposition.

Vitamin C has been routinely added to monkey and guinea pig feeds. This vitamin is probably one of the most sensitive, being affected by air, moisture, trace metals, temperature, etc. Our data on monkey and guinea pig pellets have shown initial pelleting losses of 25% and sometimes higher. An additional loss of 25-50% occurs after just a few weeks of storage of the pellets at normal summer temperatures. In comparison, ascorbic acid stability in mash feeds is significantly better with losses averaging about 10% per week under humid conditions. Recent interest has centered on vitamin C supplementation of laying feeds. Our pelleting studies to date on several commercial formulas has shown initial pelleting losses of 25-50%. Potency falls rapidly in pellets during summer storage. Studies are underway in several laboratories to reduce this problem. Meanwhile, it would seem desirable to confine vitamin C addition to laying mash or to add adequate overages to pellets.

TABLE 11. Antibiotic Stability in Broiler Pellets (4)

Antibiotic*	30 Days R.T. %	60 Days R.T. %
Terramycin (R)	91	76
Aureomycin (R)	76	67
Bacitracin-Zn.	74	55
Erythromycin-CNS.	64	20
Oleandomycin	88	81

*Antibiotics added as commercial feed supplements.
Microbiological assay precision ±10%.

Thiamine (vitamin B_1) is known to be relatively unstable in the presence of moisture and temperature. However, there are no known data on thiamine stability in feed products. Here again, assay difficulties have complicated the determination of the low levels of naturally-occurring thiamine in feeds. In view of the importance of vitamin B_1 for most species, this would constitute a worthwhile research project.

Despite the wide interest in folic acid, published data on its properties and stability are few even in the pharmaceutical literature. It is unstable at acid pH values, and certain B-vitamins such as riboflavin may promote decomposition. There are no known data on feeds, due in part to assay difficulties. We believe this vitamin poses a potential stability problem in pelleted feeds, and that research is needed. No data are known on pyridoxine, biotin and inositol.

C. Antibiotics—The antibiotics employed in feeds today are compounds of complex chemical structure. Although all are classed as inherently sensitive, some products are superior to others in this respect.

Early studies in our laboratories indicated that commercial penicillin sources varied widely in stability in stored pellets. Typical results from these tests are presented in Table 10. Tests were conducted as outlined earlier.

The results indicated that some types of high quality pharmaceutical procaine penicillin were relatively unstable in feeds and pellets. Specially prepared grades for feed supplementation were subsequently developed. These showed uniformly superior stability and are now available from a few basic producers.

For comparison, results are shown in Table 11 from our tests on other leading antibiotics. Test conditions were again identical.

The above values obviously apply only to our feed, equipment and conditions as specified. While the trends are believed significant, the absolute values will vary significantly under different manufacturing and use conditions.

ASSAY PROBLEMS—No discussion of pelleting would be complete without mention of micro-ingredient assay problems. Lack of understanding of analytical difficulties and incorrect sampling methods are unquestionably major causes of erroneous stability data. Presumably minor changes in feed formulas have completely baffled unsuspecting laboratories.

Added fat has often interfered with extractability during assays. Molasses and high levels of milk solids have both also necessitated modifications. The aqueous buffers are often replaced by organic solvents for extracting high-fat feeds. Conversely, organic solvents do not always function well on molasses feeds, necessitating a switch to aqueous buffers. High bentonite levels may cause trouble by preventing complete extraction of Terramycin and Aureomycin in certain formulas. This possibility must be eliminated in assays on pellets to obtain meaningful results.

Another perplexing problem is

(Turn to PELLETING, page 65)

a helping hand*
FOR FEED MILL EARNING POWER

FAST, GRANULAR GRIND
SPEEDY, TWIN SPIRAL MIXING
HANDY, BULK HANDLING
GRAIN BANK STORAGE
WELL QUALIFIED FEED SERVICEMEN

*based on SERVICES demanded by TODAY'S BUSINESS FARMERS

You've got the experience to serve today's new BUSINESS FARMER! Now, give yourself the benefit of PRATER engineering and automation to make the most profitable use of THAT experience.

In addition to well-trained feed servicemen, today's poultry and livestock farmers need and demand fast grinding and thorough mixing equipment, bulk handling and grain bank operation.

You get this automated assembly-line operation in one low-cost packaged feed mill plant completely pre-engineered by PRATER.

With a PRATER packaged plant, you not only save on the installation but are also assured of steady earnings based on dependable BLUE STREAK equipment.

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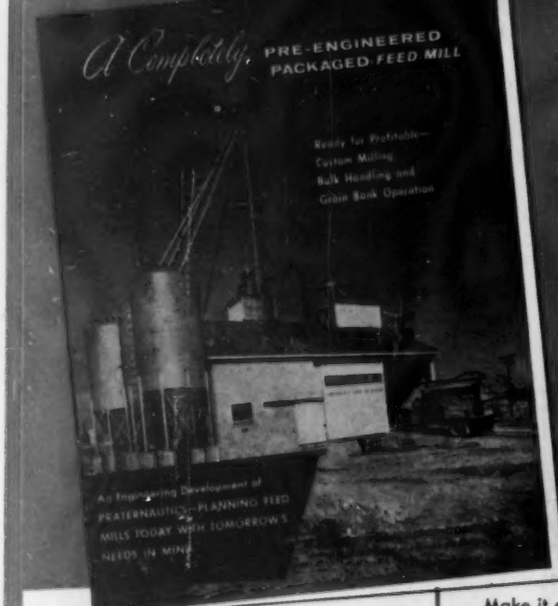
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BASIC ARRANGEMENT
CUSTOMER CONVENIENCE
PROPER SIZED EQUIPMENT
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EASY GRAIN RECEPTION
GRANULAR GRIND OF GRAIN
TWIN SPIRAL MIXING
GOOD EQUIPMENT DOES MAKE A DIFFERENCE

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Rush your new Bulletin 459 without delay!

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This man . . .

And this man . . .

have found the way to reduce disease risk in turkey feeding

They have seen how costly troubles can occur at any time. They have learned that diseases seldom attack singly . . . that a host of other troubles quickly attack birds weakened by disease or stress. Their successful solution to the problem of reducing disease risks through *protective feeding* follows.

"nf-180 pulled us through tight year"

Grower reported: "We couldn't have stood our usual mortality losses this year the way prices were. Usi. g nf-180 kept disease down so we came through with very little trouble. Better feed conversion saved us money and our birds finished out well. Got a top price. Don't believe we could afford to raise turkeys without nf-180. especially in a tight year."

"Finished best flock in years"

This grower's last flock had made poor gains, suffered frequent off-feed periods and disease setbacks. His feed serviceman suggested nf-180 in the feed this year to prevent these troubles. Birds were started on 2 lb. level nf-180 feed and kept on it all through brooding period. Grower liked the size, vigor and livability of his flock so well he decided to continue 2 lb. level on to marketing. "Our death losses were the lowest and finish the best we'd had in years," he said.

"nf-180 gave us trouble-free season"

Turkey broiler grower had 8,000 on 2 lb. level of nf-180 from start to finish. Got to market without any disease troubles. Then put in another 8,000 for regular market. Kept these on 2 lb. level for 14 weeks and dropped to 1 lb. nf-180 per ton on to finishing. This flock just as trouble-free as first one.

"We don't start a

"It's taken care of most everything

Virgil Grigsby, Dover, Del., and his son raise some 30,000 turkeys a year. Five years ago paratyphoid swept through his flock until he was advised to check it with a 2-lb. level of nf-180. "And since then we haven't started a flock without using nf-180 protective feeding," he says. Here are his tape-recorded comments:

"Why did you try nf-180, Mr. Grigsby?"

"In 1954 we started with 14,800 Beltsville turkeys. Then paratyphoid hit and we lost down to 10,000 birds. I was told the only thing on the market that would do any good was a 2-lb. level of nf-180."

"How did it work?"

"We put our remaining 10,000 birds on nf-180 and at

"Best hatchability,

"This past year has been my best since I've been in the turkey business," says R. T. Maddox, Harrisonburg, Va. And he backs it up with profit figures. For example, on one breeder flock of 500 hens, the profit shared by Maddox and his grower totaled $6,756.35. Recently, Mr. Maddox took time off from his regular job at the Rockingham Milling Co., Harrisonburg, to tell his nf-180 protective feeding story. Here's how the conversation went:

"Mr. Maddox, tell us about your turkey breeder operation."

"I have four flocks of 500 breeder hens each. I also grew out about 67,500 birds this year. I hire people to keep them for me."

"Do you medicate the feed your breeder birds receive?"

"Yes, with a low level of nf-180. That's 1 lb. to the ton."

"And you think nf-180 is worthwhile?"

"Well, I've had much better hatchability since using

nf-180 protective

nf-180 (brand of furazolidone) on your feed tag is much, much more than a simple ingredient listing. It becomes an important customer-winning sales tool that goes on to build confidence and a good reputation for your feed . . . the sort of reputation that helps acquire new business.

If you're anxious to insure the turkey feed business you now have . . . and gain new customers, too . . . nf-180 is quite likely what you're looking for. The two reports above are typical of the enthusiasm turkey raisers all over the country have for nf-180 medicated

flock without nf-180"

that's happened to my turkeys."

once they stopped dying. They began to gain again so we kept them on a 1-lb. level from then on."

"You were satisfied with the results?"
"We figured it did an excellent job. And since then we don't start a flock without nf-180. It helps with blackhead, takes care of enteritis . . . in fact, nf-180 has taken care of most everything that's happened to turkeys on this farm."

"How is your feed conversion?"
"We have very good feed conversion. I think that nf-180 helps the birds do all they are capable of doing. If you keep your birds clean inside, they can't help but grow."

best profits ever!" *says R. T. Maddox*

the nf-180, and most of the flocks had better lay than last year. We started out the season at 76% hatchability and our overall average was 69% hatchability for the season."

"How does that compare with flocks which didn't have nf-180?"
"Last year without nf-180 we had a 51% average hatchability."

"Do you think nf-180 gives any other benefits?"
"Yes, I do. It helps considerably to hold down blackhead. In general, it helps control all diseases. That's why I'm using nf-180 in my growing flocks this year, too."

"One last question. Have you ever recommended nf-180 to other people?"
"Yes. If you have something but you don't know what it is, the best thing is to use nf-180. It covers a wider range of diseases than most anything."

feeding can win new customers for you

feeds. nf-180 does more to boost the reputation of your turkey feeds than any other drug. It helps keep customers satisfied...reduces service calls...gives your growers a better chance to produce meat at a profit.

The reason is simple. nf-180 is the only drug that offers such wide-range disease-effectiveness. In fact, it prevents and controls more turkey diseases than any other drug you can use.

What's more, nf-180 is palatable. It stimulates feed intake, improves growth and feed conversion, protects birds against stress. It's safe for birds of all ages, including those highly valuable breeder flocks.

The chart on the next page shows how nf-180 gives your feeds disease-fighting versatility never equalled by antibiotics or other drugs. It also describes how you can set up a simple, effective nf-180 protective feeding program. See for yourself how it can help your customers make more money. See how it can help you make more money, too. Then ask the Hess & Clark representative who calls on you to work out the details of getting started. Or write Hess & Clark, Ashland, Ohio, and we'll see you get fast attention.

nf-180 prevents and controls more turkey diseases than any other drug

Comparison of nf-180 (furazolidone) with other drugs used in turkey feed medication

DRUG	Growth Stimulation	Typhoid & Pullorum	Prevention	Paratyphoid	C.R.D. Sinusitis	Blue Comb	Enterohepatitis	Synovitis	Ulcerative Enteritis (Quail Disease)	Blackhead	Short Periods
*nf-180 (furazolidone) Level (grams)	YES 7½-10	YES P-50 T-100	YES P-100 T-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-100 T-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-100 T-200	YES P-50 T-100
Chlortetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES P-50 T-100
Oxytetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES 50
Bacitracin Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	NO	NO	NO	NO	YES P-50 T-100
Penicillin and Streptomycin Level (grams)	YES 2-5 (for penicillin)	NO	NO	NO	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	NO	NO	NO	NO
Penicillin Level (grams)	YES 2-5	NO	NO	NO	YES T-100	YES T-100	NO	NO	NO	NO	NO
Penicillin and Bacitracin — 27½B plus 12½P Level (grams)	YES 5 Bac 1 Pen	NO	NO	NO	YES P-50	YES P-50	NO	NO	NO	NO	NO
Erythromycin Stearate	NO	NO	NO	NO	P-? T-YES	P-? T-YES	NO	P-? T-YES	NO	NO	NO
2 - Acetylamino 5 - Nitrothiazole	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-YES	NO
4 - Nitrophenyl Arsonic Acid	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-NO	NO
A Sulfa—Tin—Arsonical Combination	YES	P-? T-NO	NO	NO	NO	P-YES T-NO	P-YES T-NO	NO	NO	NO	NO

KEY: P: Prevention level in grams per ton of complete feed
T: Treatment level in grams per ton of complete feed

*Each pound of nf-180 contains 50 grams of furazolidone

Look how easy it is to set up an nf-180 protective feeding program

Right from hatching, turkeys are threatened by diseases and stresses. No matter how ideal the management may be, poults are critically sensitive to stresses which lower their disease resistance. Protective feeding with nf-180 reduces the chance of a serious disease outbreak . . . keeps birds healthy, gaining and profitable. Here are plans that fit your needs:

1. **STARTING PERIOD** . . . use 2-lb. level in all feed from start, through brooding and first week on range.
2. **GROWING-FINISHING PERIOD** . . . check your past history and local disease problems. Choose the protective feeding program you need:
   - 2-lb level continuously should be used to protect against blackhead, hexamitiasis and other diseases.
   - 1-lb. level continuously gives wide protection against stress and many diseases where blackhead and hexamitiasis are not likely problems.
   - week-a-month plan for areas where disease is not a serious problem. Many growers report good luck using a 2-lb. level of nf-180 stress feed one week a month to clean up birds, fight stresses and knock out disease organisms before they can build up and trigger trouble.
3. **BREEDER FLOCKS** . . . as soon as birds are selected put them on a feed with 2 lbs. nf-180 for 2 weeks. Then switch to a feed containing 1 lb. of nf-180 and keep breeders on this level through the laying season. In case of severe stress or disease outbreak, put birds back on the 2-lb. level until the danger has passed.
4. **TO TREAT SPECIFIC DISEASES** . . . use a feed with a 2-4 lb. level of nf-180. Refer to chart above for proper level.

Why take chances with drugs that fight only one or two diseases? Use nf-180, the one drug . . . the only one . . . that offers wide-range effectiveness.

Protect birds—from poults to processor—with nf-180.

HESS & CLARK, Ashland, Ohio
Division of Vick Chemical Company

nf-180®
brand of
furazolidone

Doane Stockholders Elect Board Member

ST. LOUIS, MO. — Forest L. Goetsch was elected to the board of directors at the last annual stockholders meeting of Doane Agricultural Service, Inc.

F. L. Goetsch

Mr. Goetsch is manager of the publications division and editor of the Doane Agricultural Digest, a farm business letter for farmers, ranchers and businessmen. He also supervises preparation of all seven editions of Farming For Profit, the firm's agricultural report distributed by banks and other business firms.

He graduated from Iowa State University with a B.S. degree in agricultural economics. The first two years with Doane were spent in managing and appraising farms in central and eastern Iowa.

Feeder Pig Sales Booming in Ohio

COLUMBUS, OHIO — Ohio's first-year experience with feeder pig sales has prompted feeder pig producers to consider doubling the number of sales in 1960.

Ten or more sales are being planned for 1960, reports C. C. Bowen, Ohio State University Extension livestock marketing specialist, who said the program has met with enthusiastic support from both buyers and sellers.

In five auctions in 1959 at Chillicothe and Hillsboro, more than 5,000 feeder pigs were sold. A final sale at Hillsboro recently brought consignments from Adams, Highland, Clermont, Clinton and Brown counties. Nearly 1,500 pigs, averaging 63 lb., sold for an average of $18.43 cwt. or about $11.60 a head.

The sales offer farmers an opportunity to bid on uniform lots of graded feeder pigs, locally produced, which weigh from 30-120 lb. The pigs are sorted according to size, breed characteristics and quality. They are vaccinated for cholera and inspected by a veterinarian on arrival at the sale yard docks.

Feed and Veterinary Operation in Mississippi

JACKSON, MISS.—Livestock and Poultry Service, a new Purina Checkerboard feed store, has opened on Highway 80 west of Jackson. W. D. Ross, owner of the Ross Milling Co. and Purina dealership at Crystal Springs, will supervise the operation.

W. D. Ross and his son, Dr. Jack B. Ross, who has practiced veterinary medicine in the Jackson area for the past ten years, are proprietors of the new operation.

A complete line of feeds for livestock and poultry will be carried. Livestock and Poultry Service also will be the location for facilities used in grading and marketing of Purina eggs, produced by Ross Poultry Farms.

"The services available at Livestock and Poultry Service are professional veterinary service, drugs used in prevention and treatment of diseases, and a complete line of Purina Chows and sanitation products," Mr. Ross said.

Mr. Ross has had years of experience associated with the feed business and for the past several years has sold Purina Chows through Ross Milling Co. in Crystal Springs. By utilizing milling facilities in Crystal Springs, the new company will be able to supply livestock producers with not only complete Purina feed but also custom mix products.

Dr. Ross and Dr. Rodney D. Lee, who recently has become associated with Dr. Ross, will maintain their offices in the building at Livestock and Poultry Service. They will conduct their practice from this location and also will be available for consultation regarding problems of disease and management. Drugs and sanitation products will be available through Livestock and Poultry Service.

SIMPLE SENSIBLE AUTOMATION

NEW! STATIONARY OR PORTABLE LOW-COST SELF-CONTAINED FEED PLANT

A unique consolidation of two famous feed processing units, Davis Feed Mixer and Davis Feed Granulator. A TRUE PROFESSIONAL INSTRUMENT FOR ONLY $1225.00.

Capacity 2 tons hourly. Other sizes handle largest requirements.

SLASHES FEED COSTS TO THE BONE. RUNS BY TRACTOR P.T.O. OR ELECTRIC MOTOR. Banishes guesswork and uncertainty in feeds and feeding. Granulates all materials without flouring, the modern way. May also be had with Krimper-Kracker Grain Roller.

DISCHARGES ON FLOOR OR INTO ELEVATOR. 100% Precision Batch Mixing on hay, cobs, ear corn, grains, LIQUID MOLASSES, FISH OILS, AUREOMYCIN, supplements, concentrates, any fortifier.

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During the peak season, millions of pounds of liquid condensed whey are stored in huge tanks that are temperature controlled to maintain freshness and purity. During the off-season, Western can draw on this supply at your convenience.

The product is spray-dried to retain unidentified growth factor benefits and superior protein content. Uniform color and distribution in mixed feeds are assured.

Only Peebles' products can guarantee year-around availability, superior spray-dried processing and unvarying high quality. 32 plants across the country offer convenient service within easy reach.

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FRUEN MILLING CO.
MINNEAPOLIS, MINN.

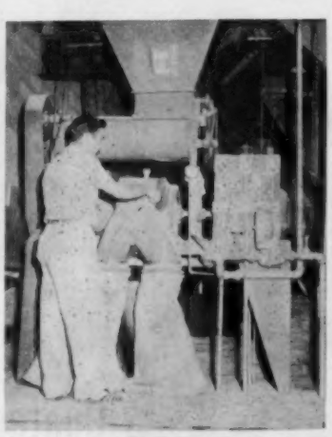
NEW MILL FACILITIES—Shown is the Southern States Feed Service plant at Harrisonburg, Va. One of the two spaces in the covered drive-in is for grain going into storage; the other is for grain to be ground.

New Custom Mill Grinds On Appointment Basis

By Al P. Nelson
Feedstuffs Special Writer

When the Southern States Feed Service of Harrisonburg, Va., added a new, well equipped custom mill to its store last summer, G. A. Roberts, manager, initiated a system of hauling and grinding by appointment to facilitate the movement of feed through the mill and back to the customer.

For example, the firm hauls feed from farmers at specified times. These hauling dates are set up by a Southern States Feed Service field man who contacts the farmers to sell them grinding and mixing services, feed and other products. Mr. Roberts says that since farmers today are plagued by high labor costs, they often welcome a hauling service such as his firm offers.



MOLASSES MIXER—Bagging from the molasses mixer is arranged to be near an open doorway at the Southern States Feed Service plant at Harrisonburg, Va. This permits customers to load feeds easily.

"By hauling grain by appointment and knowing when the farmer wants it delivered back to his bins as mixed feed, we can schedule our own grinding and mixing schedule more economically," states Mr. Roberts. "Our equipment service representative has told us it costs from 75¢ to $1 each time we start our new 100 h.p. Sprout-Waldron hammermill; therefore, it is to our advantage to keep it running continuously rather than stopping and starting it many times a day."

This hammermill and two-ton horizontal mixers have a safety overload relay, and this saves the labor of one man standing at the switch to shut off equipment when overloaded. It takes about 20 min. to grind and mix a ton of feed in the new custom plant.

There are two receiving grain pits in the double, sheltered drive. One pit is for receiving grain which is brought in for storage and which goes into three Butler bins, each with a capacity of 2,000 bu. The second pit is for receiving grain which goes into the hammermill for grinding and later for mixing.

Grinding rates are 15¢ cwt.; mixing rates are 5¢ cwt.; the charge for hauling grain from farms to the mill to be ground is $1 per ton.

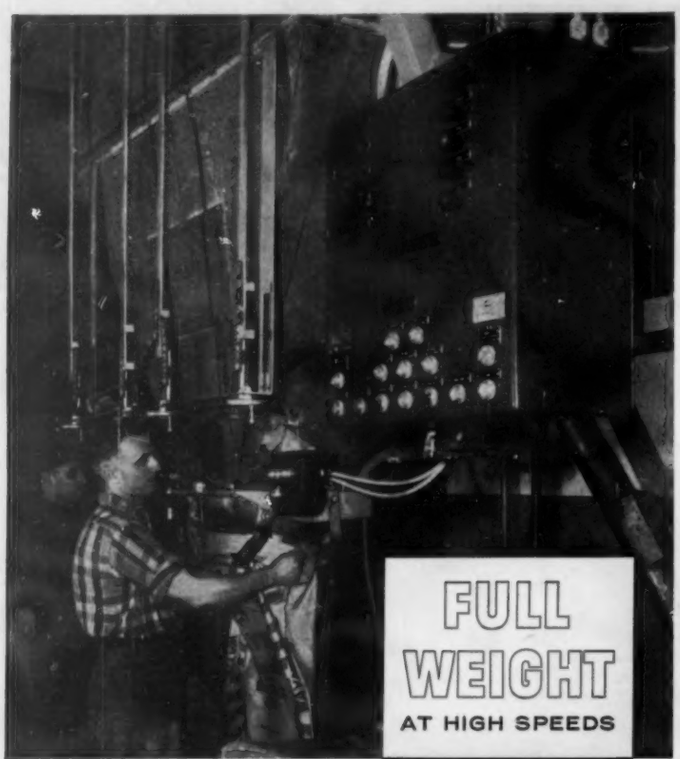
Other equipment in the new custom mill includes a Kewaunee hoist, a 40-ton, 50-ft. Winslow scale, a Sprout-Waldron molasses blender, a one-ton Brower mixer for mixing medicants in feeds, and a Sprout-Waldron Pneu-Vac system for loading ground feed into trucks. The firm has a 10-ton truck which can be used for delivering feed in either bag or bulk.

The molasses blender is located close to a load-out area, so farmers who want dairy or hog feed with molasses can load easily in either bags or bulk.

The new custom plant has been

(Turn to page 34)

SPECIAL INGREDIENTS — In the new custom grind-mix setup at the Southern States Feed Service plant at Harrisonburg, Va., special ingredients can be added to mix, as shown above.



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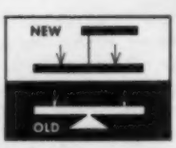
THAYER SCALES'

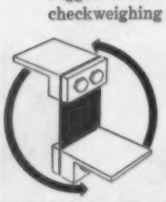
consistent accuracy gives you weight security without wasteful overfilling of bags. Thayer Filling Scale, Model 2N18CC, pictured above, fills 50 lb. bags at high speeds reliably and with sustained precision. In addition, when filling materials are changed, the scale is easily adjusted by one simple control.

Write for our new Filling Scale Bulletin and the name of your local Thayer sales and service representative.

The heart of all Thayer weighing systems is the "Thayer Flexure Plate" Leverage System* which is guaranteed completely accurate for the life of the scale. There are no knife-edge pivots to wear down, therefore neither dirt nor vibration affect its high accuracy. The Thayer system is unsurpassed in design simplicity and in reliability even under the most rugged conditions. It is ideal for filling, batching and checkweighing applications.



*PATENTED



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AUTOWEIGHTION SYSTEMS FOR FILLING, BATCHING AND CHECKWEIGHING

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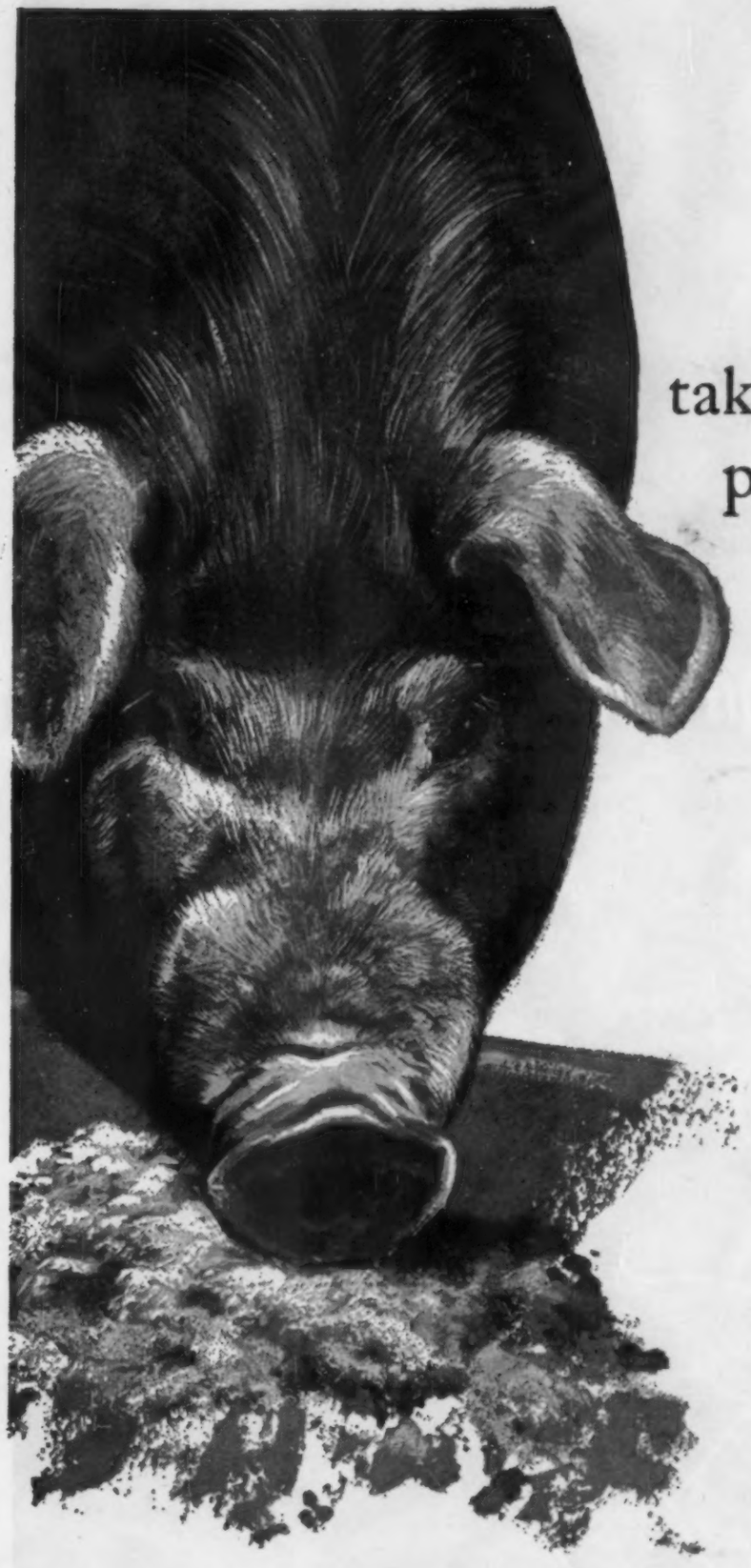

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This chemically processed and purified dicalcium phosphate consistently rates high in biological availability. (Each pound of DYNAFOS delivers as much usable phosphorus as 2 to 9 pounds of unprocessed, raw phosphates.) You get top feed performance without having to add phosphorus for unnecessary margins of safety. That's why International's Dynamic DYNAFOS takes the waste out of phosphorus feeding . . . stretches your phosphorus dollar.

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Polystat® and Histostat®-50

Offer a Medicated Turkey Feed Program that Delivers Protection from Start to Finish

Today's turkey raisers are looking for a feed that combines consistent nutrition and health protection. They rely on you to provide them with feeds that will do more for their birds at an economical cost. This is one reason you'll want to follow the Dr. Salsbury Polystat and Histostat-50 program in your turkey feed formulations.

When formulating your turkey starter feeds, push the Polystat button. Polystat eliminates the need for a separate coccidiostat, a separate wormer, and a separate growth stimulant. This effective combination offers "top level" protection at a "low level" cost.

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Dr. SALSBURY'S LABORATORIES
Charles City Iowa

NATIONWIDE SERVICE TO THE FEED INDUSTRY

DANNEN MILLS SESSION—Plans for observing the silver jubilee anniversary were reviewed as Great Plains salesmen of Dannen Mills held a two-day session in St. Joseph, Mo., recently. Attending the session were (left to right): Front row, Lucky McKean, Ottawa, Kansas; Glen Hahn, Osceola, Kansas; Jim Larson, Greeley, Colo.; Jim Cummins, Verdun, Neb.; Darrell Knetzer, St. Joseph; Bill Foster, Wichita, Kansas, and Marvin Hembree, Stockton, Mo.; back row, Ed Ryan, Beloit, Kansas; Jack O'Hara, Holton, Kansas; Joe Carney, Norfolk, Neb.; Jack Hippe, Kearney, Neb.; Bryson MacDonald, Elliott, Iowa; Jim Rozell, Warrensburg, Mo.; Dale Kydle, Carl Junction, Mo.; Max Peters, St. Joseph; Bob King, Marceline, Mo., and Keither Sorum, Alliance, Neb.

so designed that farmers who bring in their grain can do so in a drive-in-and-out basis. There is no need for backing up of trucks. In fact, Mr. Roberts says that farmers do not like to back up to deliver grain or get their feed. The "continuous drive ahead" layout also enables the Southern States Feed Service to handle more customers during the day.

Poultry Feed Service

If Southern States Feed Service wants complete, finished poultry feeds in bulk for its customers, it can get them quickly from the adjacent bulk plant storage of Cooperative Mills, Inc. This firm supplies finished feeds for Southern States Cooperative Service agencies in the entire Harrisonburg region, servicing 22 agencies.

The bulk storage plant has a 12-ton Sprout-Waldron pneumatic bulk truck which will deliver large lots of feed. Some farmers call for their own feed at the bulk plant, or have custom bulk haulers get it for them.

Mr. Roberts reports that while many farmers have their own storage bins for ground and also for finished feeds, Southern States Feed Service will also supply them with 4-7 ton metal bins on a loan basis. For the farmer with these bins, the discount is $4 per ton of bulk feed, and if he owns his own tank he gets a $5 discount per ton. Mr. Roberts says these bins are furnished at cost, and are depreciated 5% every six months down to 25% of current replacement costs.

Under a lease arrangement like this the farmer saves about $70 per year on a 7-ton feed storage bin, or $350 in five years.

"We like our new custom mill installation very well," states Mr. Roberts, "and we are steadily increasing our number of grind-mix customers and the monthly grind-mix volume."

M. A. Tomlinson, assistant director of Southern States private agency services, says the cost of the bulk plant storage of Co-op Mills, Inc., and the new custom mill of the Southern Feed Services, both on the same premises, is approximately $250,000.

The new custom mill service is increasing the traffic considerably at Southern States Feed Service. One result of this greater traffic is increased sales of well-displayed farm service items in the store, warehouse and office.

Novel Display Wins Wirthmore Contest

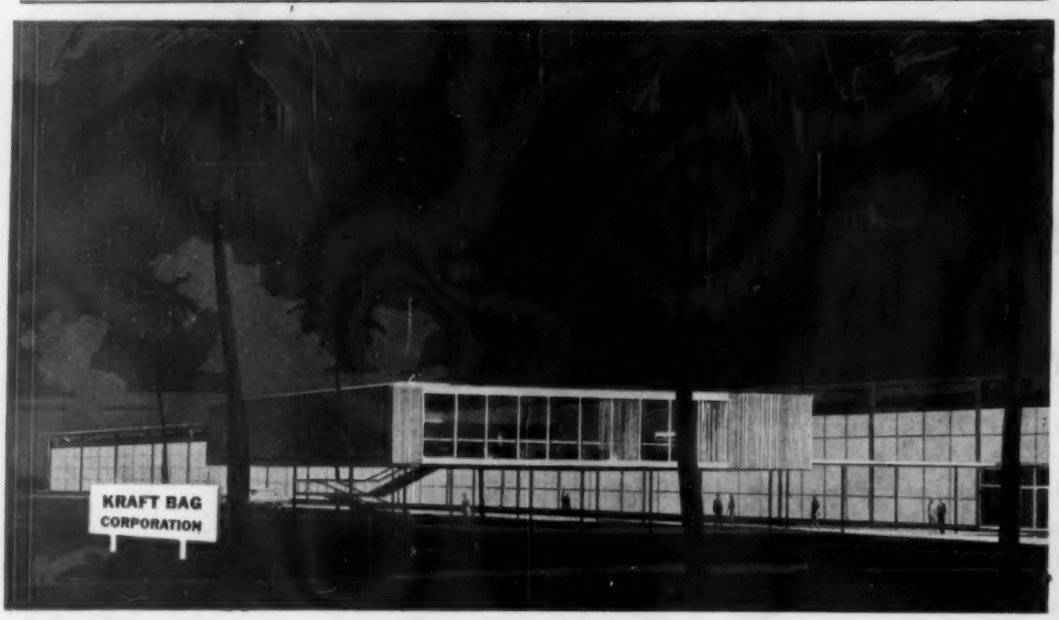
WALTHAM, MASS. — Leroy Sensenig, Wirthmore distributor in Hinkletown, Pa., is the winner of the latest in a series of dealer display contests sponsored by Wirthmore Feeds, Inc.

Mr. Sensenig may choose his own first prize from a list of merchandise items.

It was just before Halloween when the idea for a display appropriate to the season occurred to Mr. Sensenig. He decided to make his Wirthmore serviceman, Jack Renshaw, the central character. So he made up a "man" from a Wirthmore bag stuffed with straw and belted in the middle with a piece of rope. With a Wirthmore cap atop his pumpkin head, bulk pipe for legs, a Wirthmore jacket and boots stuffed with Wirthmore literature, his man was complete. Mr. Sensenig then christened his creation "Jack-O-Renshaw" and placed a card on his belt which read, "Poultry Problems? Ask for Mr. Renshaw."

Before his display was finished, Mr. Sensenig had equipped "Jack-O-Renshaw" with poultry books, a basket of fresh eggs, Wirthmore signs and record forms.

Employees of Mr. Sensenig who helped with planning and arranging the display are also entitled to their choice of prizes.



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This expansion of our facilities is one more step in our constant efforts to provide our customers with the best in quality and service.

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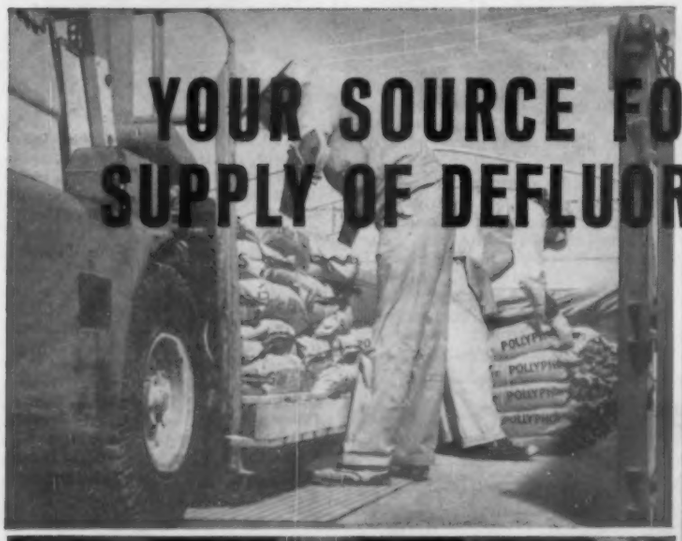

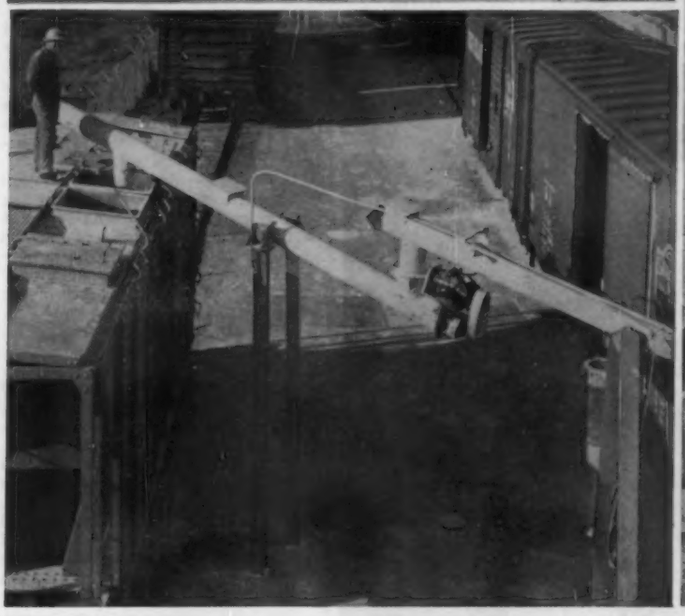

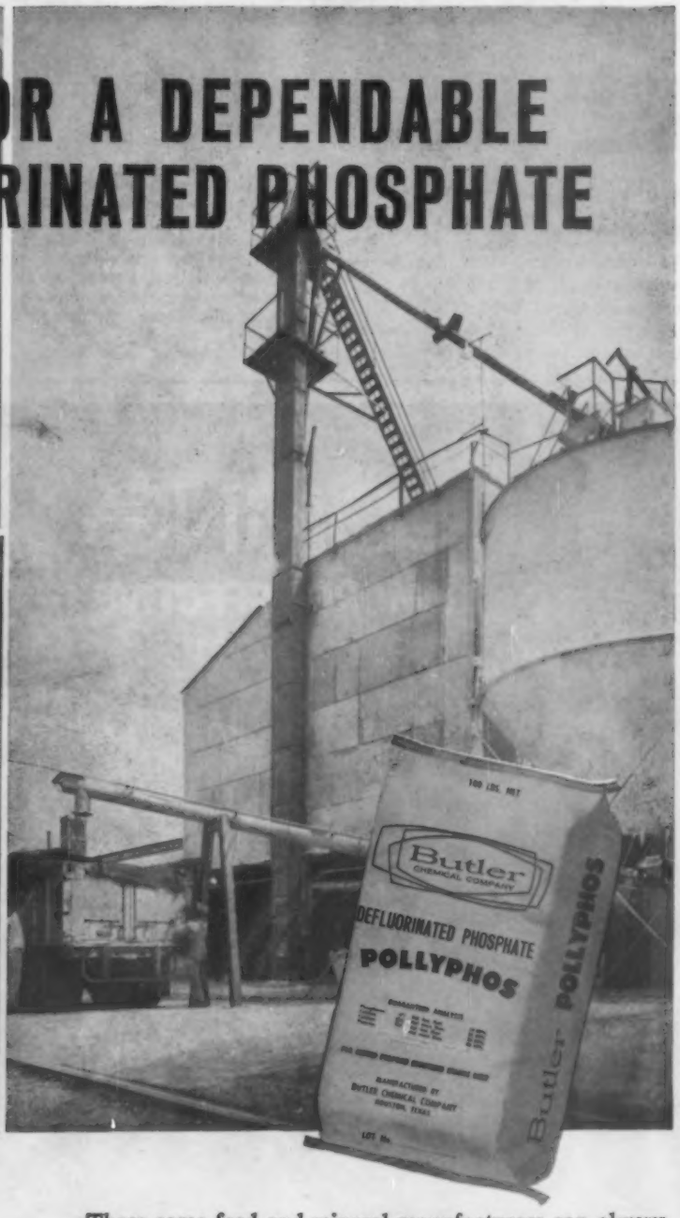

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Additive Labeling Responsibility

With attention and interest in the contamination of the nation's food supply growing and currently focused on the use of diethylstilbestrol implants and the use of drugs in feeds, it is well that every manufacturer and feed dealer examine his own situation critically. It is my view that as an industry it should pass such an examination with flying colors. A study of feed labels will, I think, reveal strict adherence to the requirements for labeling feeds containing drugs.

Self-analysis, however, will always be in order. Only in this way can weak spots be uncovered.

The Manufacturer—Continued vigilance is called for on the part of the feed manufacturer to make certain first of all that his labels contain the necessary information. This goes for large and small companies alike. Within the month tags were reviewed in my office for one company that failed to carry the necessary statement "To be fed to poultry only" in connection with a certain feed additive. Such an omission or failure to have the proper wording can and does occur. This must be watched.

Further, the manufacturer has a responsibility in the preparation of collateral literature to accompany the sale of feed containing drugs stressing the proper uses and uses to be avoided. Literature of this type should be reviewed constantly. Again with the size of business involved it sometimes happens that one branch of a larger company will prepare a statement for distribution and such statements appear on the counter of the distributor before the branch plant manufacturing the feed knows of it and it may be in error in some significant respect. This office again has called such a matter to the attention of one manufacturer.

An overly enthusiastic promotion department may find itself dealing with a matter about which it has no first-hand knowledge and may go so far as to prepare copy for advertising or brochures without proper clearance with other branches of the same company.

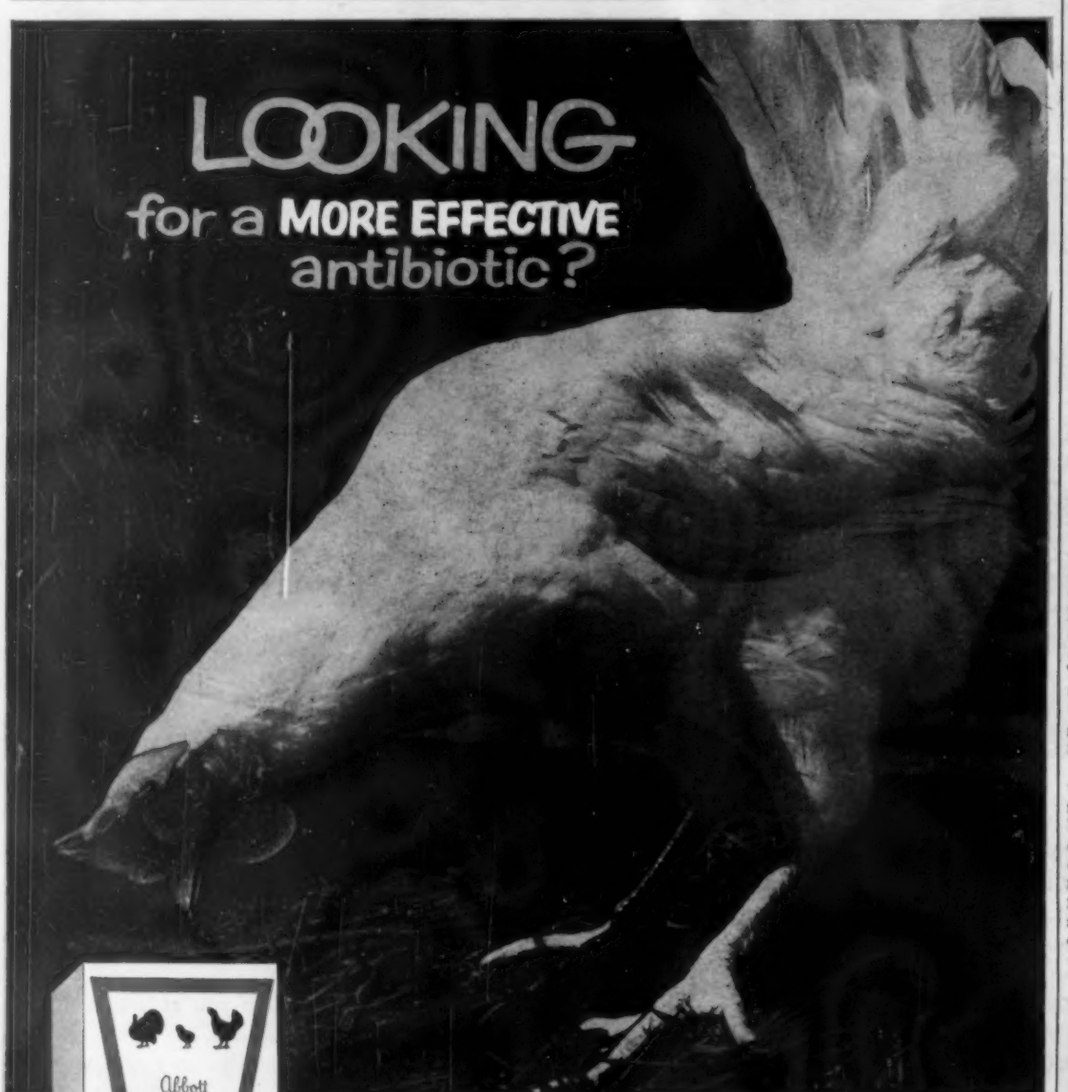
Dealer's Responsibility—The dealer and salesman should be thoroughly familiar with the limitations and potential of each product, especially with respect to misuse. Every customer and purchaser should have these called to their attention, clearly indicating where these statements are to be found on the label or in accompanying literature or both. This will serve to constantly remind all concerned of the importance of this type of information as well as give evidence where the information is available.

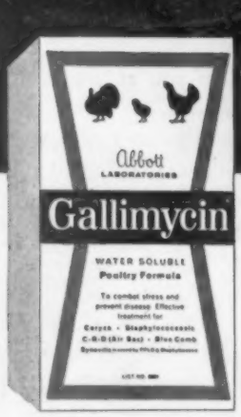
The local dealer should make certain that each purchaser of feed that must be discontinued, say five days before marketing to allow for the elimination of the drugs from the edible tissue, realizes that he must feed a feed free of drugs during the five-day period. Does the dealer have such a feed on hand and does he encourage the user to purchase a sufficient quantity of such feed to use

(Turn to FEED CONTROL, page 57)

Dr. C. A. Bottorff Dr. W. Mellen

PANEL DISCUSSION — "The Influence of Environment Upon Disease Control" will be the subject of a panel discussion Feb. 4 at the University of New Hampshire Poultry Health Conference scheduled Feb. 4-5. Speakers on the panel will include the following: Dr. C. A. Bottorff, American Cyanamid Co., Princeton, N.J.; Dr. William Mellen, University of Massachusetts; Harold Gulvin, Eastern States Farmers Exchange, West Springfield, Mass.; Ralph Colton, Wallace Hy-Cross Hatcheries, Doylestown, Pa., and Dr. Thomas Culton, Cooperative Mills, Inc., Bridgeville, Del. For complete program details write the University of New Hampshire poultry department, Durham, N.H.





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Studies on Vitamin K Assay Diets

By Dr. M. L. Scott, Dr. L. C. Norris and D. T. Hopkins
Cornell University

Vitamin K has received a considerable amount of attention in our laboratory over the past two years.

Dr. T. S. Nelson, working with Dr. L. C. Norris, conducted a thorough study of the requirements of the chick for the various forms of vitamin K, and also of factors affecting these requirements. In the course of these studies, it was found that very consistent results were obtained on the vitamin K requirement when a purified vitamin K-deficient diet was used.

The requirements of chicks at two and four weeks for vitamin K_1 and menadione sodium bisulfite are presented in Table 1. While menadione sodium bisulfite appeared to be more active when measured on a straight weight basis, it was found that vitamin K_1 and menadione sodium bisulfite were equally active when expressed on a molar basis.

Thus, the requirement for vitamin K_1 was found to be approximately .54 mg. K_1 per kilogram of diet, while the requirement for menadione sodium bisulfite was approximately .4 mg. per kilogram of diet. However, approximately 1.2 micromoles of either form were required per kilogram of diet.

Requirement Increased

When sulfaquinoxaline was added to the basal diet, the vitamin K requirement was increased to a varying extent depending upon the form of vitamin K used. The results presented in Table 2 show that the vitamin K_1 requirement was increased approximately five-fold by addition of sulfaquinoxaline to the diet. The requirement for menadione sodium bisulfite was increased approximately 700%.

EDITOR'S NOTE: The program at the last annual meeting of the Animal Nutrition Research Council in Washington dealt primarily with the work of the ANRC's technical projects committee. An introductory report on the committee's activities and one of the technical papers presented at the meeting are reproduced here. The paper on vitamin K assay diets is one of a number of papers dealing with standards and diets for vitamin K research. Other ANRC papers under this and other subject headings will be reproduced in subsequent issues of Feedstuffs. Dr. S. R. Ames of Distillation Products Industries, Rochester, N.Y., is chairman of the technical projects committee.

It was with this background that the present experiment was undertaken in collaboration with other members of the ANRC. The main purpose of this collaborative study was to determine the standard responses to vitamin K_1 and menadione sodium bisulfite in chicks receiving a modified ANRC broiler ration containing .1% of sulfaquinoxaline. The composition of this basal ration is presented in Table 3. This diet was supplemented with graded levels of either vitamin K_1 or menadione sodium bisulfite as shown in Tables 4 and 5, respectively.

Furthermore, in an attempt to determine whether or not this ration would be suitable for biological assay

(Turn to page 43)

TABLE 1. Vitamin K Requirement of the Chick

Form of vitamin K	Requirement			
	μg/kg		μM/kg.	
	2 wks.	4 wks.	2 wks.	4 wks.
Vitamin K_1	537 ± 75	533 ± 100	1.19	1.18
Menadione sodium bisulfite	415 ± 160	381 ± 45	1.26	1.15

• • • • • •

Technical Projects Committee And Its Program

By Dr. Stanley R. Ames
Distillation Products Industries

The Animal Nutrition Research Council was originally organized with the primary aim of investigation and standarization of bioassays for vitamin A and vitamin D. A great deal was accomplished. With the application of modern statistics and nutritional know-how, standard bioassay procedures were devised. These were widely used and have become generally accepted.

In more recent years other topics have been investigated by the technical projects committee. Methods for the evaluation of protein quality were investigated, recommendations were made and a "standard protein" adopted. Further study of this problem has been undertaken by the AOAC.

A notable accomplishment of the technical projects committee was the formulation of the ANRC reference chick diet by Dr. Leo Friedman and Dr. George Briggs. This diet is now accepted as the chick reference diet in many laboratories. With suitable modifications, the ANRC reference chick diet can be used for vitamin bioassays, thus facilitating further progress in this field.

Is there any need for further investigation and standardization of bioassay procedures and reference standards?

Let us consider the fat-soluble vitamins. There is no bioassay standard for vitamin K. An international standard for vitamin E bioassays has been adopted but is no longer available in the U.S.

I'm afraid our laboratory may have contributed to this lack of availability. We tested the activity of the international standard in one small chick assay of only four weeks duration and used up the entire stock on this side of the Atlantic. All 10 one-ounce bottles of it!

The USP vitamin A reference solution is widely accepted in the pharmaceutical industry. However, its inherent instability when used as a feed supplement has limited its use by animal and poultry nutritionists. The presently available standards for vitamins A and E are inadequate for

(Turn to PROGRAM, page 44)

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1. **With greater values obtained from the feed, broilers get up to weight faster.**
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August 19, 1959

Mr. Chas. L. Davidson, President
Stone Mountain Grit Company, Inc.
Lithonia, Georgia

Dear Mr. Davidson:

As you know, our business has been built on the reputation of "serving those who demand the best." Our quality products of ice packed poultry are shipped daily throughout the United States.

We include Stonemo in our feeding program to assure ourselves, and our customers, that the birds we offer are the finest possible. We have found that your Stonemo Granite Grit helps us get full value from the feed. This results in top-quality poultry that can bear the Marshall Durbin Tag of Approval.

We have also observed that with Stonemo, our birds come up to weight fast and we are not bothered with gizzard impaction from feathers, litter, or fiber.

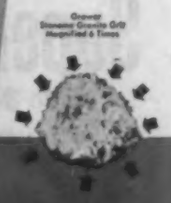
The use of grit, we feel, helps us to avoid such problems as feather pulling and barebacks. Our servicemen recommend one 80 lb. bag for each 1000 birds per week.

To maintain the quality production for which we are known we must use the finest feeds and proven management methods. Stonemo in our feeding program is one of the proven practices that we feel we cannot do without.

Sincerely,

Marshall Durbin

Marshall Durbin, Sr.



STONE MOUNTAIN GRIT COMPANY, INC., LITHONIA, GEORGIA

TABLE 2. Effect of Sulfaquinoxaline on Vitamin K Requirement of the Chick

Form of vitamin K	—Requirement in presence of sulfa ♀— μg/kg	μM/kg	Inc. due to sulfa ♀ %
Vitamin K_1	2670	5.92	500
Menadione sodium bisulfite	2683	8.13	700

of the vitamin K activity of a practical broiler ration, a commercial ration was extracted for 48 hours with 95% ethanol. The ethanol extract was added to the test diet at levels equivalent to 25 and 50% of the extracted ration. Growth, efficiency of feed conversion and prothrombin times were determined on the chicks at four weeks of age. The results of this study also are presented in Table 5.

These results show that, at equivalent molar concentration, vitamin K_1 was considerably more active than menadione sodium bisulfite. In fact, whereas 16 micromoles of vitamin K_1 reduced the prothrombin times to normal, 16 micromoles of menadione sodium bisulfite produced a prothrombin which was no better than that obtained with two micromoles of vitamin K_1 per kilogram of diet. These results are, therefore, in agreement with earlier results from our laboratory indicating that vitamin K_1 is more effective in overcoming the antivitamin K activity of sulfaquinoxaline than is menadione sodium bisulfite.

Divergent Results

In view of the divergent results obtained with these two forms of vitamin K, it is easily understood that the value for the vitamin K activity of the commercial broiler ration depends, therefore, upon whether it is expressed in terms of vitamin K_1 or in terms of menadione sodium bisulfite. When the value obtained for the commercial ration is expressed in terms of vitamin K_1, it appears that the commercial broiler ration contained between 3.26 and 4.0 micromoles of vitamin K_1 per kilogram. On the other hand, if it is expressed in terms of menadione sodium bisulfite, one would find that the commercial broiler ration contained between 56.9 and 63.1 micromoles of menadione sodium bisulfite per kilogram of diet.

Although the practical assay diet would be convenient for use by many laboratories, it appears that such a diet cannot be used without the stress

TABLE 3. Practical Assay Diet for Vitamin K

Ingredient	Amount, %
Ground yellow corn	57.00
Soybean oil meal, 50%	35.70
Corn oil	3.00
Dicalcium phosphate	2.20
Limestone	1.70
Salt, iodized	0.25
Manganese sulfate	0.02
Zinc chloride	0.01
Methionine	0.10
Santoquin	0.0125
Sulfaquinoxaline	0.10

0.2 mg. riboflavin, 1.5 mg. niacin, 0.8 mg. calcium pantothenate, 1.0 μg vitamin B_{12}, 300 I.U. vitamin A, 40 I.C.U. vitamin D, 10 I.U. vitamin E per 100 gm. of ration.

TABLE 4. Results with Practical Diet Using Vitamin K_1

Amount of K_1 μM/kg	Av. wt., 4 wks. gm.	Feed/gain	Average prothrombin time secs.
0.5	417	1.86	49.3 ± 2.1
1.0	402	1.90	47.6 ± 2.4
2.0	413	1.95	28.0 ± 1.0
4.0	423	2.02	28.9 ± 0.9
8.0	420	1.87	27.1 ± 0.7
16.0	424	1.84	24.0 ± 1.1
Normals*	500	1.70	20-24

*From numerous studies conducted at Cornell during past two years. Nelson, T. S., Ph.D. thesis.

TABLE 5. Results with Practical Diet Using Menadione Sodium Bisulfite (MSB)

Amount of MSB μM/kg	Av. wt., 4 wks. gm.	Feed/gain	Average prothrombin time secs.
0.5	361	1.98	65.2 ± 2.3
1.0	393	2.00	61.1 ± 4.8
2.0	408	1.95	55.0 ± 3.6
4.0	368	2.12	43.4 ± 2.4
8.0	439	1.83	42.8 ± 1.3
16.0	422	1.98	30.9 ± 1.4
Ethanol extract—25% com. ration	455	1.88	38.9 ± 1.7
Ethanol extract—25% com. ration	457	1.93	35.3 ± 1.8

TABLE 6. Composition of Purified Assay Diet for Vitamin K

Ingredient	Amount
Glucose (Cerelose)	58.34
Drackett C-1 Assay protein	26.84
Stripped lard	3.00
Cellulose (Solka-Floc)	3.00
dl-Methionine	0.70
Glycine	0.30
Mineral mix*	6.58
Vitamin mix†	1.00
Choline chloride, 70%	0.22
Vitamin B_{12}, 0.1 mg./gm.	0.02
	100.00

*Mineral mixture. When included in diet at level of 6.58%, supplied following per 100 gm. of diet:

Ingredient	Amount gm./100 gm.
Dicalcium phosphate, feed grade	2.726
Limestone, feed grade	1.492
Iodized salt, feed grade	0.700
$KHCO_3$	0.384
KH_2PO_4	0.867
$MgSO_4$	0.250
$FeSO_4 \cdot 7H_2O$	0.0333
$MnSO_4 \cdot H_2O$, feed grade	0.0333
$CuSO_4 \cdot 5H_2O$	0.00167
$ZnSO_4 \cdot H_2O$	0.0132
$CoCl_2 \cdot 6H_2O$	0.00017
$Na_2MoO_4 \cdot 2H_2O$	0.00028

†Vitamin mixture. When included in diet at a level of 1.00%, supplied following per kg of diet:

Ingredient	mg./kg. diet
Biotin	0.2
Pyridoxine HCl	4.5
Folic acid	4.0
Thiamine HCl	10.0
Riboflavin	10.0
Calcium pantothenate	20.0
Niacin	50.0
Inositol	250.0
Vitamin D (3,000 ICU/gm.)	325.0
Vitamin A (10,000 IU/lb.)	500.0
d-alpha tocopherol acetate (500,000 IU/lb.)	600.0
Butylated hydroxytoluene	220.0
Glucose (Cerelose)	8006.3

Calculated ME = 1474 Cal./lb.
Calculated % protein = 24.16.
ME/P = 61.0.

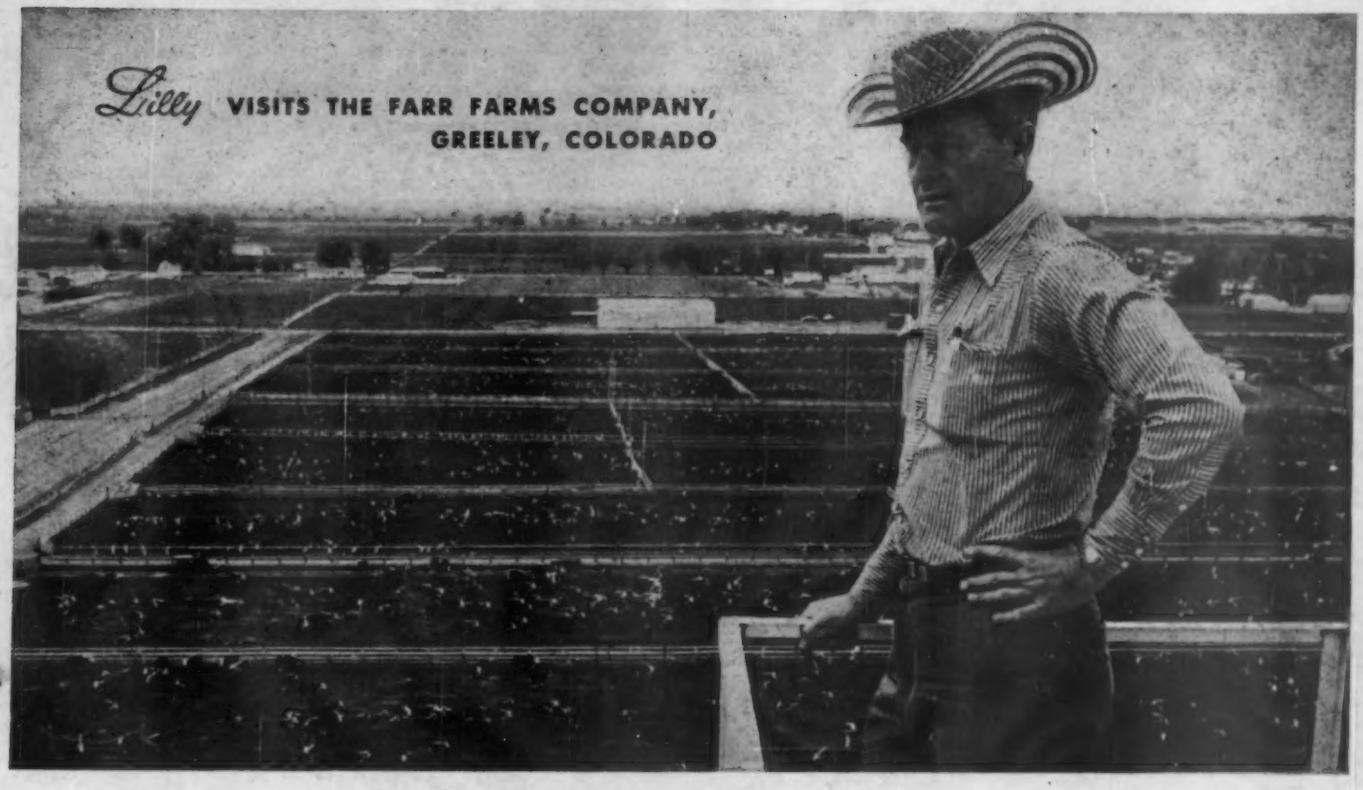
What you want in a coccidiostat... Trithiadol's got!

1. Effective Control–
of all commercially important species of coccidia.

2. Superior Feed Conversion–
. . . up to $40 extra profit per 1000 birds in impartial comparative tests.

3. Complete Safety–
for poultry . . . harmless to other warm blooded animals.

Above are 3 of the 9 major advantages which only TRITHIADOL® gives for greater protection and larger profits. Get the FACTS . . . write, wire collect to STERWIN CHEMICALS INC., 1450 Broadway, New York 18, N. Y.



"We've fed 70,000 steers and heifers on Stilbosol since 1955"

"Our records prove it pays to feed Stilbosol every day to every head we can," reports feedlot manager-nutritionist. Detailed records back his story.

by Eugene S. Hahnel

The famous Farr feedlots can fatten 10,000 cattle at one time. The day we visited with Dean Selleck, their livestock supervisor and nutritionist, 70% of the cattle on hand were market heifers.

"Stilbosol gives us excellent gains on heifers, too," Dean told us. "In fact, most of our cattle get Stilbosol rations every day they're here, up to 48 hours before slaughter. Since we first experimented with Stilbosol in 1955, we've fed it to more than 70,000 head. About half of those were heifers. Our records show the extra gains and greater feed efficiency . . . and Stilbosol has cut our cost of gain 12 to 15%."

When Dean speaks of records, he really means it. Three long pages of abstracts are kept on each lot. These records include every conceivable fact on the cattle from the time they're bought until they hit the market.

Before using Stilbosol, the Farr lots averaged 2 pounds daily gain on steers fed 120 to 140 days, and about 1.85 pounds on heifers. Now, with Stilbosol, they boost daily gains up to 2.5 pounds on steers, 2.25 pounds on heifers. "Those figures are conservative," Dean told us. ". . . that includes all the shrinks right up to the packing-house scales.

"With all this evidence in Stilbosol's favor, it looks like a fellow would have to be pretty backward not to feed it to *all* his market cattle *all* the time," Dean concluded. "You just can't overlook those extra gains and lower costs."

Lilly SALES TIPS FROM GRASS-ROOT SOURCES

FARR FARMS CO., GREELEY, COLORADO

Dean Selleck keeps page after page of records on each lot. He *knows* that it pays to feed Stilbosol—and his comments make a strong selling story:

1. **Stilbosol cuts cost of gain 12% to 15%.**
2. **Stilbosol-fed steers gain up to 1/2 pound more per head per day.**
3. **Stilbosol-fed heifers gain up to .4 pound more per head per day.**
4. **When possible, feed Stilbosol every day to every head for extra gains and lower costs.**

Stilbosol®

(diethylstilbestrol premix, Lilly)

Lilly

Stilbosol is Eli Lilly and Company's trademark for diethylstilbestrol premix which is manufactured and sold under exclusive license granted by Iowa State College Research Foundation, Inc., under its U. S. Patent No. 2751303.

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TABLE 7. Results with Purified Diet (Containing No Sulfa Q)

Amount of K_1	Av. wt., 4 wks.	Feed/gain	Average prothrombin time
μM/kg	gm.		secs.
0.1	468	1.76	53.2 ± 3.7
0.2	460	1.76	43.7 ± 2.2
0.4	444	1.76	31.9 ± 1.6
0.8	507	1.71	26.9 ± 1.7
1.6	472	1.73	22.0 ± 0.7

of sulfaquinoxaline, and that, when this is done, one cannot obtain a true assessment of total vitamin K activity of an unknown sample which contains both vitamin K_1 and menadione or menadione sodium bisulfite. Such a diet might be used if the unknown sample was known to contain only one of these three forms of vitamin K, but this rarely is the case in practice.

On the other hand, a purified diet can be used successfully for the bioassay of vitamin K activity. The composition of the diet which we have used is presented in Table 6. Note that this diet does not contain sulfaquinoxaline. The effects of adding graded levels of vitamin K_1 to this diet are presented in Table 7. It is apparent from these results that only approximately one tenth as much vitamin K_1 is required to produce normal prothrombin times in chicks receiving this diet as is required when vitamin K_1 is added to the practical diet containing sulfaquinoxaline. It has been demonstrated, as indicated in Table 1, that, micromole for micromole, menadione sodium bisulfite is approximately equivalent to vitamin K_1 when added to this diet.

Further Advantage

A further advantage of using the purified diet is the fact that only approximately one-tenth as much vitamin K activity is needed in this diet. Thus, in order to obtain an assay for the vitamin K activity of the unknown commercial broiler ration, we would have needed ethanol extract of the commercial broiler ration equivalent to only 2.5 and 5% of the original ration instead of 25 and 50% as was needed as supplements to the practical ration containing sulfaquinoxaline in order to obtain improvements in prothrombin times which could be compared to the standard curve. Furthermore, the standard curve has been more consistent and more reproducible with the purified diet than it has been when a practical diet containing sulfaquinoxaline was used.

Menadione sodium bisulfite did not appear to reverse, completely, the elevated prothrombin times caused by sulfaquinoxaline which were reversed completely by vitamin K_1. This may have been due to differences in biological activity on a molecular basis in the presence of the drug, or to an inherent property of menadione sodium bisulfite.

Note—Menadione Sodium Bisulfite, U.S.P. was used in this project.

PROGRAM

(Continued from page 38)

some bioassay procedures or for the determination of minimum daily requirements..

The technical projects committee has undertaken to investigate actively and present proposals for ANRC reference standards for vitamin K, vitamin E and vitamin A. We believe that an ANRC reference standard should possess as many as possible of the following properties:

(1) High purity,

(2) Easily analyzed by chemical procedures,

(3) Reasonably stable when mixed in feeds,

(4) Easily obtainable in the necessary quantities,

(5) Known content of biologically-active isomers,

(6) High biological availability and

(7) Known relationship to present USP and international standards.

Thus, an ideal ANRC reference standard can be employed either as an oral supplement or as a dietary additive. Furthermore, it can be used for inter-laboratory comparisons of various products and as a standard for reference in various research programs.

This ambitious program was undertaken with full knowledge that it could not be completed in 1959. Excellent progress has been made. I thank my colleagues on the technical projects committee, Dr. Douglas Frost, Dr. Lloyd Matterson, Dr. James Fritz, Dr. Leo Friedman, Dr. Francis Bird, and also the many collaborators and cooperating laboratories.

F. K. Greenwall Heads Corn Research Unit

NEW YORK—Corn Industries Research Foundation, Inc., has announced the election of Frank K Greenwall as president.

Mr. Greenwall is chairman of the board of the National Starch & Chemical Corp., New York. He succeeds William T. Brady, president of Corn Products Co., New York, who continues as chairman of the executive committee of the foundation. Mr. Brady and A. E. Staley, Jr., chairman of the board of A. E. Staley Manufacturing Co., Decatur, Ill., were elected vice presidents of the foundation.

Members of the Corn Industries Research Foundation, Inc., include 11 companies manufacturing products of corn by the wet-milling process.

Salt Shipments

TACOMA, WASH.—Shipments of salt from Great Salt Lake, Utah, to the chemicals industries of the Pacific northwest have commenced from new ponds of Solar Salt Co.

For more than a century, salt sales from ponds on the lake have been totally restricted to the inter-mountain area because of economic factors involving transportation costs.

On hand for the start of the shipments were F. C. Shanaman, Tacoma, president of Solar Salt Co. and president of the Washington division of Pennsalt Chemicals Corp.

Solar Salt is a jointly controlled subsidiary of Pennsalt and Hooker Chemical Corp., New York. The two parent firms have put about $1 million into plant and pond development located near Grantsville.

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EVERYWHERE YOU LOOK
THERE'S ANOTHER NEW
TUXEDO DEALER!
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50 LBS. NET
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Taste Tested
COMPLETE FEEDS LINE
MADE BY THE EARLY & DANIEL CO CINCINNATI, OHIO
Tuxedo is growing by leaps and bounds!
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CHASE BAGS
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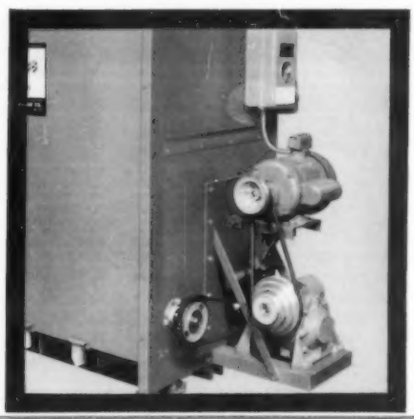
INCUBATORS

Since 1881 The Buckeye Incubator Company has been leading the field in the engineering and development of large commercial incubators. Now, with the new Streamliner 140-141, hatcherymen can look forward to a new era of scientific incubation. Practically all possibilities of human error have been eliminated by making automatic all of the vital functions including: temperature, humidity, turning, ventilation, cooling, alarm, visual recording, and continuous fumigation. Buckeye Incubators assure a high hatch percentage and healthy, top quality chicks.

E-Z MECHANICAL FEEDING WILL MAKE YOU PROFITS

The Buckeye E-Z Mechanical feeder is the latest model designed from actual field experience on thousands of poultry farms. It is heavy, rugged and well suited for all types of poultry house operations. Three sizes of trough are available—shallow for broilers; medium for pullets; and deep for breeder hens and turkeys. The rugged motor assembly (below) quickly adjusts to speeds of 10, 20, 30, 40 feet per minute. A direct chain drive to the feed agitator is synchronized with speed of feed chain. Belt tension is adjustable by means of easily reached knob. Gear reducer is efficient, positive and built for a lifetime of hard use. The E-Z Feeder becomes a real money-making partner for the poultryman either used alone or in conjunction with other laborsaving devices such as pit cleaners, conveyors, slatted floors, multi-deck roosts, bulk bins and others.



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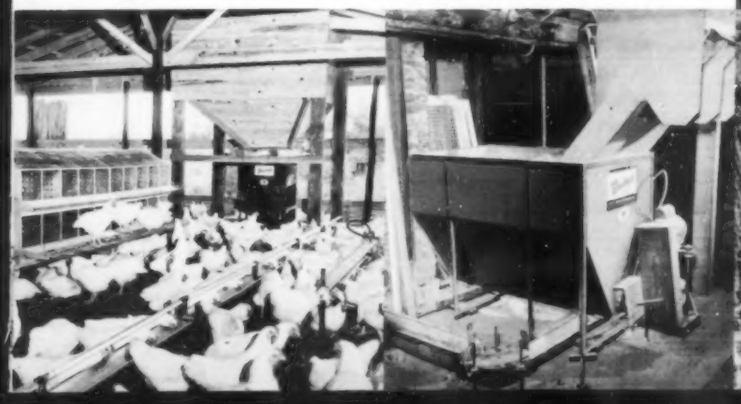
CAGE FEEDER

Designed especially for use in cage laying houses the Buckeye Cage Feeder puts low cost mechanization within reach of all poultrymen. Employing a unique conveyor to move the feed, the Cage Feeder operates quietly, is easily installed, serves up to 500 feet of trough, can be time clock controlled and is adaptable to bulk feed handling systems. This feeder is suspended and mounts directly on most types of cage layouts. No new trough is necessary as this feeder is specifically designed to use existing trough.

AUTOMATIC WATERERS

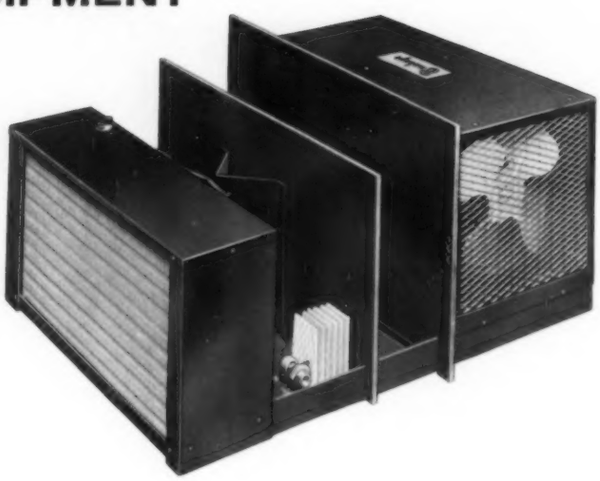
Buckeye Automatic Waterers are of both valve and drip types depending on the requirements of the poultryman. The DW-8 is a valve-type waterer with heavy-duty, solid construction. The waterer is 8 feet long, 3 inches wide and 1¼ inches deep. The SF-10-A pictured at the bottom is 10 feet long with a trough 3 inches wide and 2 inches deep. It has an open, unobstructed end which allows cleaning with a single swipe of a brush or rag. The waterer is also available in a six foot model. Both waterers are adjustable to any height, easy to clean, quickly assembled, and offer adjustable reels, heavy corrosion-resistant metal and hanging arrangements.

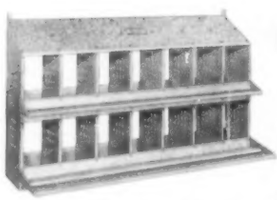
AND HATCHERIES
WITH
EQUIPMENT
TO CUSTOMERS' NEEDS



EGG HOLDING EQUIPMENT

Buckeye Egg Room Units assure automatic control of temperature, humidity and air circulation, the three most important factors in holding egg quality at the highest level. Easily installed and sturdily built, Buckeye Egg Room units can be vital factors in egg profits. In addition to these units, Buckeye offers egg room doors, hardware, all accessories and construction plans.





NESTS

Buckeye metal nests are extra heavy gauge steel throughout with doubly rigid perch supports, adequate ventilation, and knock-out bottoms for easy litter replacement. All parts are specially formed or folded to eliminate sharp edges. Buckeye nests offer "hen comfort." Available in 10, 14 and 15 hole models.

BROODERS

To get chicks off to a good, healthy start use Buckeye Coal or Gas Brooders. Designed to get the most out of the heat produced, these economical Brooders spread warmth evenly and thoroughly under the canopy. They are sturdily built, trouble-free and easy to operate. Available in sizes to accommodate from 350 to 1250 chicks. Also ideal for poults.

Buckeye WAREHOUSES for your convenience.

Alabama Warehouse	Next to Alabama Poultry Auction Cullman, Alabama	Ph. RE 4-0748	**Mississippi Warehouse**	States Equipment Co. Forest, Miss.	Ph. GI 3-8409
Southern Arkansas Warehouse	218 Hawthorne St. Hot Springs, Ark.	Ph. NA 4-3491	**Missouri Warehouse**	Box 164 Neosho, Mo.	Ph. GL 1-3511
Northern Arkansas Warehouse	P. O. Box 662 Russellville, Ark.	Ph. WO 7-3383	**Pennsylvania Warehouse**	2180 Poplars Road, Box 1135 York, Penna.	Ph. 4-6556
Carolina Warehouse	1112 Ann Street, Box 252 Monroe, N. Carolina	Ph. AT 3-3311	**Texas Warehouse**	1407 N. Industrial Blvd. Dallas, Texas	Ph. RI 7-9430
Georgia Warehouse	S. Main & Industrial Blvd. Gainesville, Georgia	Ph. LE 2-0121	**WESTERN BRANCH OFFICE & CALIFORNIA WAREHOUSE**	1608 MERCED FRESNO, CALIF.	Ph. AM 8-6234

For detailed information write to any of these warehouses or to The Buckeye Incubator Company, Springfield, Ohio.

THE BUCKEYE INCUBATOR COMPANY

Springfield, Ohio, U.S.A.

Poultry Historical Unit Sets Meeting Feb. 13

KANSAS CITY — The American Poultry Historical Society will hold its eighth annual meeting here Feb. 13 at 4 p.m. in the Muehlebach Hotel, announced Prof. Loyal F. Payne, Manhattan, Kansas, president of the society. The meeting will be held in conjunction with the Fact Finding Conference.

The portrait of the late Mary E. Pennington, one of three persons accepted into the society's Hall of Fame in 1960, will be unveiled at the Fact Finding Conference session.

Others to be accepted into the Hall of Fame are Prof. James G. Halpin and Dr. F. R. Beaudette.

Officers will be elected at the annual meeting.

Membership in the society is open to anyone interested in furtherance of the objectives of the society. In addition to sponsoring the Hall of Fame, the society has a program dealing with the collection and preservation of historical materials and records relating to the poultry industry, according to Dr. J. Holmes Martin, secretary.

Loans Approved for Feed and Grain Firms

WASHINGTON — Small business loans were approved for five feed, grain and related firms during November, according to Philip McCallum, administrator of the Small Business Administration.

Loans approved follow: Donovan's, Inc., Albert Lea, Minn., $100,000, manufacturing feed for poultry and livestock; Bill Sifford & Sons Feed Mill, Puxico, Mo., $10,000, feed mill; Jack C. Bess, Puxico, Mo., $16,000, grain dealer; Poultrymen's Service Corp., South Toms River, N.J., $45,000, poultry feed and supplies, and Mecklenburg Farm Supply Co., Chase City, Va., $26,000, feed, seed and hardware.

Nutrena Mills Names Formulation Assistant

MINNEAPOLIS—Lowell W. Gardner, graduate of Purdue and Indiana universities, has been named formulation assistant in the product and services department of Nutrena Mills, Inc., here.

Robert H. Mason, department manager who announced the appointment, said Mr. Gardner will work in nutrition and feed formulation programs.

Mr. Gardner holds a bachelor's degree in animal husbandry from Purdue and a master's in business management from Indiana.

Appointments Made

MADISON, WIS. — The appointment of Robert F. Prier as assistant director of laboratories and John J. Birdsall as assistant to director of laboratories, was announced by Philip H. Derse, director of laboratories, Wisconsin Alumni Research Foundation.

Their responsibilities will involve coordination of activities in research, consultation and testing for industry and government.

To Use Potato Starch Pulp in Cattle Feed

IDAHO FALLS, IDAHO—J.P.M. Co., Inc., has been established and begun construction on a plant here to develop potato starch pulp for cattle feed.

George Renaking, manager, explains that 90% of the potato starch pulp had been dumped into the river prior to the cattle feed process development. This former waste product will be converted into a high grade carbohydrate cattle feed. It will be chemically treated to increase its digestibility.

YOUR PLUS FOR PROFIT

Dehydrated Alfalfa will boost the value of your feeds with high quality protein, all important vitamins and minerals . . . PLUS . . . Xanthopylls for better pigmentation and Unidentified factor(s) for growth promotion.

MEMBERS THROUGHOUT THE NATION TO SERVE YOU

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TESTS ON CHICKS SHOW THAT

Vitamin A

STRENGTHENS THE BARRIER AGAINST INFECTION

Mucous membranes lining the gastrointestinal and respiratory tracts are the primary barriers which prevent the entry of infective agents into the body proper. Vitamin A is critically involved with the defense mechanism of the mucous membrane. Adequate vitamin A keeps the mucosa healthy, enables the chick to resist infection. Insufficient vitamin A renders the chick liable to infection through both respiratory and intestinal membranes.

Why are liver stores of vitamin A important?

Reserves of vitamin A are the essential safety factor against stress. Reserves are stored in the liver, but only after other tissues are adequately supplied. Therefore, when chicks show good liver storage, it is a sign that other tissues are saturated with vitamin A.

The most effective vitamin A supplement: Nopcay® Type V

Test after test has shown that preformed vitamin A such as Nopcay Type V produces very high liver storage. This means that it protects the mucous membranes and helps combat infections such as chronic respiratory disease and coccidiosis.

Adequate vitamin A stored in the liver is an indication that other tissues are fully supplied. For example...
Respiratory membranes, where vitamin A helps combat colds, nutritional roup, air sac infection (CRD).
Intestinal membranes, where vitamin A helps strengthen the barrier against coccidiosis, Capillaria worms, intestinal enteritis.

SUPPLEMENT YOUR FEEDS WITH NOPCAY TYPE V BECAUSE IT CONSISTENTLY BUILDS UP HIGH LIVER STORAGE LEVELS OF VITAMIN A AND THUS ASSURES THE MOST EFFECTIVE PROTECTION TO ALL OTHER TISSUES

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Swine Producer Tells Why He Feels—

Midwest Farmer Can Compete Against Integration, 'Bigness'

By Bernard Collins

EDITOR'S NOTE: In this article an Iowa hog farmer expresses some pointed views on the future of swine production—some of which may conflict with what some researchers and swine specialists are saying. The article was presented by Mr. Collins as a talk at the National Swine Industry Conference at Iowa State University. The author produces more than 2,000 pigs a year in five crops on 440 acres near Clarion, Iowa, and is regarded as one of the state's outstanding hog producers. His June and July pigs are raised on pasture, his December, January and February pigs on concrete. Whatever their own views may be, many feed men may be interested in these remarks by a leading producer to others in the swine industry.

It strikes me as being very unusual in this day and age to ask a farmer and swine producer his ideas on the future of swine management systems. For the last five years, there have been an increasing number of experts, most of them with an axe to grind, telling the farmer what the future of swine production was going to be.

So much of the material that I have been exposed to for several years has been aimed at telling the farmer he can't compete with specialized, large enterprise units for swine production in the future, unless he too spends $40,000-100,000 in "tooling up" to meet the competition, that I've become thoroughly disgusted.

It's got to the stage where I get mad now before I pick up the article or hear the speech on how BIGNESS is the answer to future swine management systems. I am going to spend my time telling you why I think that the future of swine production is going to rest with the farmer. First though, let's examine the reason behind this trend towards thinking big.

Hog Integration "Talk"

Ever since the broiler industry got fully integrated, a lot of the bright boys with a dollar sign looming very large on their horizon have been busy trying to integrate the hog business right out of the Midwest. More feed sales mean more dollars. Aiding and abetting this thought trend have been headline hungry farm publications who specialize in telling what people are going to do, rather than what they have done. Headlines make circulation and circulation means advertising dollars.

Last, but not least, every college has a few men who think that if this is the popular trend, then the way to be popular is to be way out front, and some of the ideas they develop are just that—way out. Or in the vernacular of my teen-age daughter, "real gone." Personal prestige means more dollars, salary-wise.

With this type of propaganda on every tongue, is it any wonder that even the Midwest farmer is beginning to wonder if he is going to lose the hog business? Behind all this propaganda, the dollar sign has been pretty evident, but I'm concerned that in the hustle for the personal dollar, some of the basic economics of farming and swine production have been overlooked.

Don't interpret what I've said as indicating that I think there is something wrong with the idea men. At least, there's nothing wrong that owning their own farm or swine production unit wouldn't cure in one heck of a hurry. The dollars-and-cents of farming makes one practical, fast.

It is this basic dollars-and-cents viewpoint that every farmer, every swine producer is confronted with, that will be the eventual guide as to what our future swine production systems will be. For this reason, I'm of the opinion that the average Midwest farmer can compete till the cows come home with integration, and with specialized large scale operations.

Production Costs

Let's look at costs of production: (1) feed makes up 80% of costs; (2) labor cost; (3) equipment—the three major costs.

Basically, the cost of feed is the cheapest when it is standing in the field, and every time it is moved, the cost goes up. I live 5½ miles from an elevator, and it costs me 2¢ bu. to get my grain there. Add 5¢ handling charge and 2¢ more for trucking back and you have 9¢ bu. to move the corn to an elevator and back to the farm.

Simple economics says the average farmer has a 9 or 10¢ bu. advantage

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Gives Feed Dealers Everywhere

A FULL MEASURE OF PROFIT

PILOT BRAND is in demand the year 'round. There are no slack seasons. Best of all, you always make a good profit. Here are important reasons why:

PILOT BRAND is an ideal eggshell material.

PILOT BRAND helps poultry raisers get top production of stronger-shelled eggs.

PILOT BRAND is uniformly pure calcium carbonate, kiln-dried.

PILOT BRAND costs less per usable pound.

Powerful national advertising in leading farm and poultry publications and on 70 radio stations does a good job of pre-selling for you, and assures you repeat business.

Remember, there is no adequate substitute for PILOT BRAND Oyster Shell. It's a sure-fire volume and profit builder.

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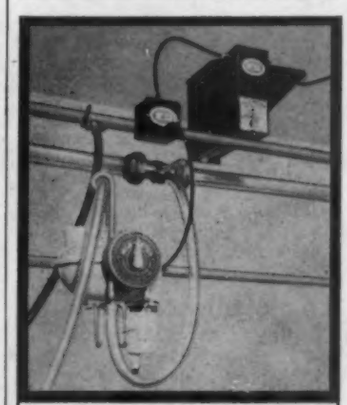
Mobile, Alabama



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in feed costs over the non-farmer or feed purchaser to start with. I would guess these figures would be considered average—and don't kid yourself, you are paying these costs one way or another. Services don't come free. There are times when that 9¢ bu. could be the difference between profit and loss. As our total feed grain production increases and grain prices drop, this service charge will increase percentage-wise, as it will not follow grain prices down. This will give the farmer an even greater feed cost advantage.

Now—let's look at this labor angle. There are many advocates of the large, specialized unit for hog production who will quote you the cost of labor as much less because it is spread over so many more hogs. On the other hand, the farm management staff at Iowa State University says that the average Iowa farmer is 30% underemployed. I can't speak for the other Midwest states, but would guess the figure to be similar. Now, can you think of any cheaper labor than a farmer's unpaid for, unemployed time? Just how do you compute the labor cost per pig of a farmer's otherwise unemployed time? It's just a little difficult, isn't it?

Not much field work is done in December, January, or February in the Midwest, and a lot of pigs can be farrowed in those three months. Curiously enough, it usually works out that pigs farrowed in these months hit the high market of the year.

Heaven help me for even mentioning as obsolete an idea as farrowing pigs on pasture, but a large volume of summer pigs can be handled without high priced equipment and very little labor even during busy summer months. If this so-called "average" farmer with 30% unemployed time doesn't have the labor cost advantage, then the value of 2 and 2 has been changed since I was in school.

Equipment Costs

Now, there's another little thing that most so-called authorities are passing off rather lightly—equipment costs. Concrete, sterile farrowing houses, followed by growing houses, followed by fattening houses plus covered feeding floors. Automation for feeding, for cleaning, for temperature control, for humidity control. That automation list gets pretty long, but there is one fundamental need for automation in the hog business that no one has come up with yet—management automation! And until someone does, "bigness" will fall far short of being the answer to swine production systems.

Somewhere along the line in school, I learned to compute interest. Even if I'd forgotten how, my banker assures me he hasn't. On a $10,000 investment interest at 4½-5% is $450-500 extra a year. On $40,000, it's pushing $2,000 extra a year, and $40,000 is a poor man's start on some of the units I've heard about.

Let's also be a little realistic about that column in our record book known as upkeep, or equipment repairs. Automation is wonderful when it's working, but it's a good sized headache and darned expensive when it isn't. Somewhere along the line, there's a point of no return on investment and equipment cost. I don't pretend to know where it is, but I do know that spending $2 per pig to save $1.50 per pig doesn't pay out in the long run. That $2 per pig is shooting in the dark. Interest on investment and depreciation costs on some of these units will run over that.

The average farmer has barns, chicken houses or other buildings suitable for pig raising with minor remodeling. Portable equipment that can be used satisfactorily on concrete or in a far corner of the farm can make a farmer's operation quite

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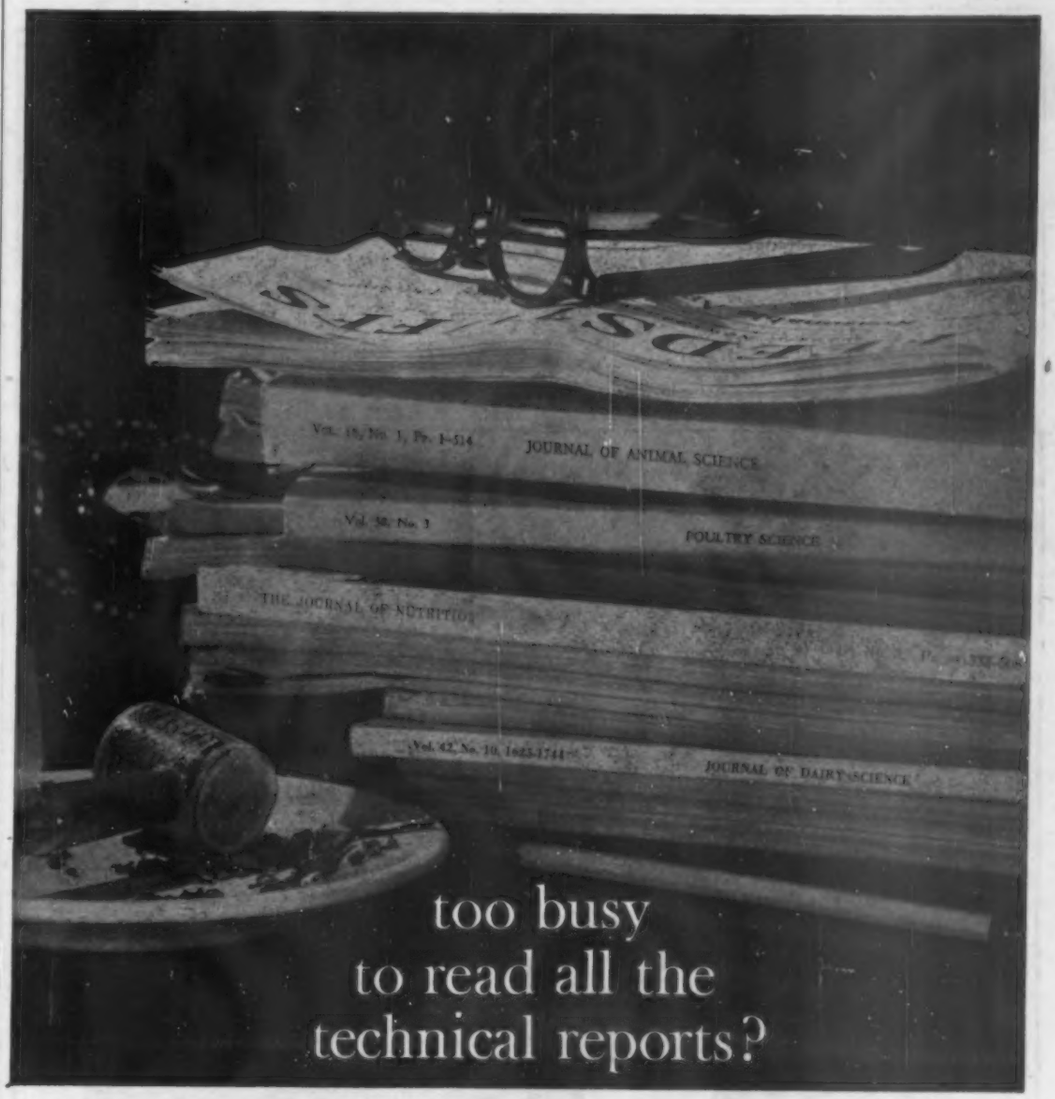

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flexible. He has a dual use for a lot of equipment—tractors, wagons, manure spreaders, loaders—that can be charged off against his farm operation, too.

I'm thoroughly convinced that the average farmer can show a definite advantage in equipment and upkeep costs over the specialized big unit.

Some disease problems haven't been licked yet. To me, the farmer with alternatives is safer than the man carrying all his eggs in one basket. From the disease standpoint, I consider myself quite fortunate to live in a temperate climate where disease buildup is slowed down four months of the year.

Proponents of bigness are saying that our quality program depends on the specialist who is more interested in quality. I was guilty of making that statement once also. One of our largest and best known operations in the Midwest is selling more hogs that grade No. 3, 4 and 5 than No. 2 —not to mention No. 1. My friends who travel the circuits tell me there are several other big ones that are guilty of this, too. No, size of operation isn't an indication of quality of product.

Multiple Farrowing

Let's consider multiple farrowing for a moment. That's a nice term devised by packers to keep their labor fully employed the year around. And it's good, too—to the extent that it's helping producers go broke gradually rather than all at one time.

I've talked to and heard of a lot of producers recently who have tried everything up to the once a month farrowings and are dropping back to no more than four times a year. It's been surprising to them how the management requirements multiply way out of proportion with the number of farrowings.

Dr. Earl Heady from our local university has come up with some figures on the farm management records which indicate that three-times-a-year farrowings are the maximum efficient number for Iowa farmers. This is a combination of a two-litter and a one-litter farrowing system which makes maximum use of unemployed time, buildings and equipment and hits better than average markets—and gives the producer the largest return.

Pasture for hogs has become a nasty word of late. It just isn't the thing to do any more—or so we've been told. Let's examine some of these buga-boos and shed a little light on them. Perhaps pasture isn't as awful a thing as we've been led to believe.

This thing called return per acre has had a good going over recently. Land is too expensive today, we are told, to waste on hog pasture. O.K.—your return per acre as hog pasture is only $20. The average return per acre on corn land is $40. So there's an advantage of $20 per acre for continuous corn, and we'll raise our pigs in confinement on concrete and make money hand over fist, raising corn. In fact, on 40 acres formerly in hog pasture, we'll gain a grand total of $800 over and above expenses.

Somewhere along the line, this pencil pushing economist forgot that to raise hogs in confinement, you've got to make a capital investment for concrete, growing and finishing houses, etc. Can you build facilities for growing and finishing out as many hogs as you can handle on 40 acres of pasture for less than $10,000? I doubt it, because I've farrowed, grown out and finished 1500 hogs on 40 acres of pasture. Also, having run quite a bit of concrete and permanent housing, I'm well aware that $10,000 doesn't go very far.

I'm going to use that $10,000 figure though, because if you take 4½% interest on your investment and then be real generous and depreciate it on a 25 year base, you end up with a cost of $850 as compared with an $800 profit for continuous corn. So, it appears to me that no matter how many holes you can pick in my economics, hog pasture isn't as bad as we are led to believe. It might even be a money-making proposition.

Let's look at labor differences between concrete and pasture. I'll fence and remove fence from pasture for a thousand head of pigs faster than I can clean up my concrete between batches of pigs, and I'm not old fashioned in my cleaning methods either.

Labor on pasture! Sure I haul feed and water to the field. I'll do that just as fast as you'll scrape or hose concrete. I'm not talking about using the scoop shovel on this grain or hauling 100 gal. loads of water. Let's be realistic. We're talking about unloading wagons, large capacity feeders, 1,000 gal. tanks and water wagons!

According to the latest thinking about manure, it's cheaper to use septic tanks and forget it than utilize it where concrete is concerned. My pigs on pasture take care of it for me. I don't even have to scrape it into the septic tank.

Whether the authorities like it or not, I'm going to give this pasture manure just a little credit. Anyway, I find I can raise as many bushels of corn per acre after hog pasture, as I do on second year or continuous corn with $15 per acre of plow-down fertilizer.

Pasture hog production isn't out of the question. There's a place for it, and future hog-raising systems will include it.

The more I study the future of swine management systems, the more sure I become that the grain producing farmer is in a stronger economic position than his competition to raise the hogs of the future. In feed costs, labor costs, equipment costs, versatility and self-employed management the farmer has the edge. It's true that any livestock operation has to complement a farm operation, not work at odds with it, to be profitable, and a swine operation can be made to do just that.

Talk about integration—the farmer is integrated. He raises his own feeder pigs, sells them to himself. He raises his own feed, supplies his own labor and management, and often his own credit. Just try and compete with that type of integration!

Future Production

True, this farmer-swine producer of the future is going to change

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some. He's going to use better breeding stock. He's going to use the new ideas that fit his needs. Sure, he'll use concrete, but he won't be indebted to it for the rest of his life. He'll also use pasture. He'll have as many different systems as meet his particular needs, economic conditions and personal desires. He'll sell a quality product when it is a quality product and not a quantity product. Maybe he'll become specialized, or perhaps he'll be diversified, but if he is diversified, it will be specialized diversification.

In short, he will accept sound new technology in swine production as he does in all his farming operations. Sure, he'll get bigger as will his farming operations, but only as his management ability warrants it.

I have a lot of confidence in the farmer of the future. Vocational agriculture schooling, college training and basic good common sense will make the future of farming and swine production a profession to be proud of.

Massachusetts Forage Testing Program Set

AMHERST, MASS. — A new program designed to aid dairymen in determining the feed value of forage has recently been inaugurated as a part of the Winter Dairy Feed Program, according to Dr. Stanley N. Gaunt, professor of dairy and animal science at the University of Massachusetts.

The program, sponsored by the extension service dairy committee, will enable participating dairymen to adjust their feeding program according to the quality of roughage and to herd needs more satisfactorily.

A new technique utilizing an artificial rumen has been introduced in the testing program. A sample of rumen juice, which contains the important forage digestion micro-organisms, is taken from a fistulated experimental cow and added to the various forage samples. These forage samples can be compared as to their digestibility, which gives a rough index of feed value. The results of the tests are mailed to the dairyman with suggestions on feed adjustments.

Each sample to be analyzed must be accompanied by an information sheet listing time of cutting, kind of hay or silage and any weather damage. Information blanks can be secured from county extension agents.

Feed Microscopists Set '60 Meeting Date

COLLEGE STATION, TEXAS — Mid-June has been selected as the annual meeting time for the American Association of Feed Microscopists, according to announcement by E. E. Brown, program committee chairman.

The annual meeting will be held June 13-15 at the Hilton Hotel in San Antonio, Texas. Previous years' meetings were several months earlier each year, but the 1960 sessions are scheduled at a time which will be in less conflict with numerous other scientific meetings that are also of interest to the AAFM membership.

Details of the sessions will be announced early in 1960. The program is being planned under the direction of the AAFM president, Lewis Barefield, Arkansas State Plant Board, Little Rock, and the program chairman, E. E. Brown of Texas Experiment Station, College Station.

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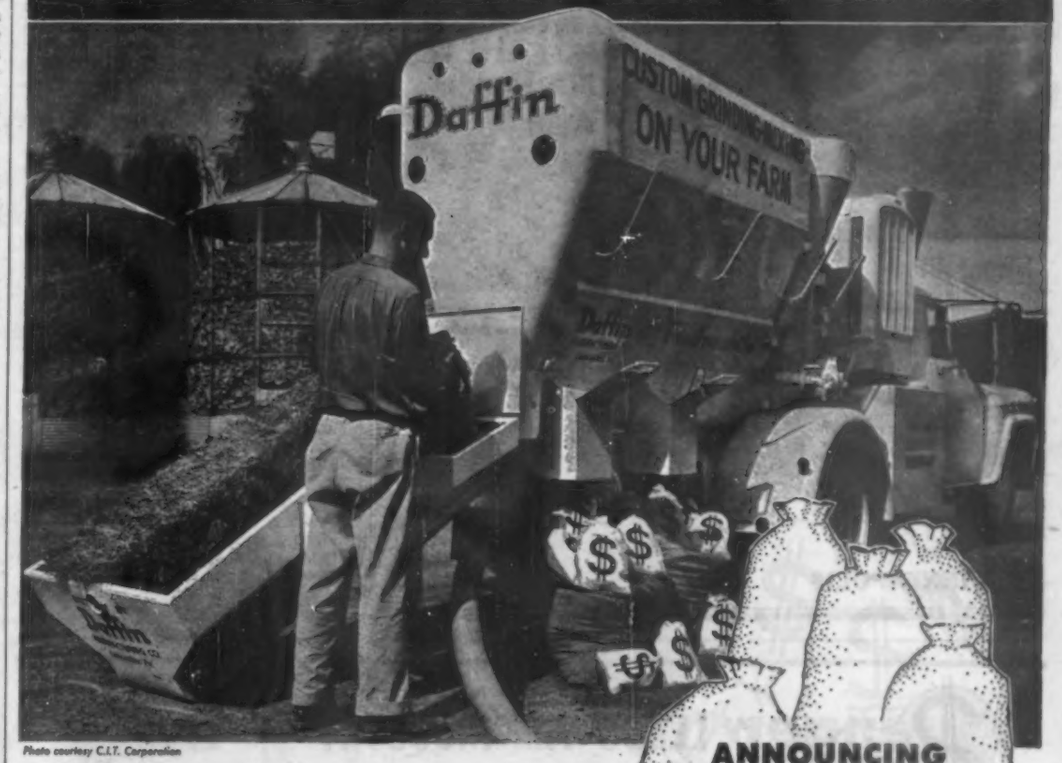

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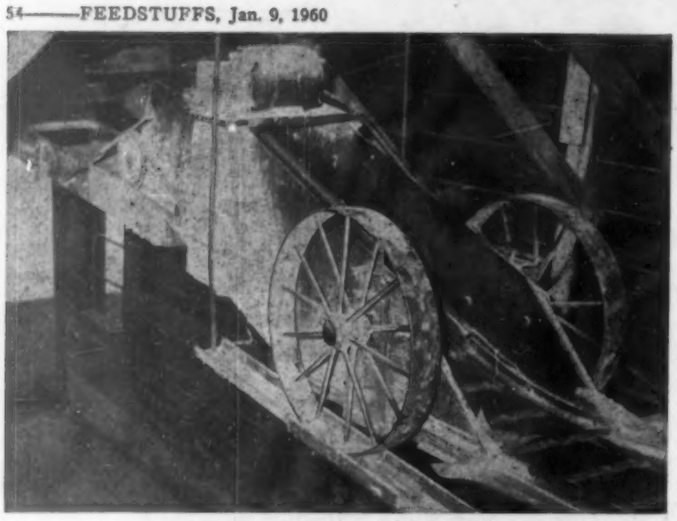

CAR UNLOADER—This shows the coal car unloader rigged up to unload hopper cars of bulk feed. Truck is positioned in pit below (once used as coal storage bin). Unloader is shown in storage position on track extending out over pit.

Coal Car Unloader Fixed to Unload Feed

ROCKVILLE, CONN.—A coal car unloader has been equipped to facilitate unloading hopper cars filled with feed here by Werner E. Kupperschmid, manager, Ellington-Vernon Farmers Exchange, and John Schwarz, fuel dealer, both of Rockville. The exchange is an independent branch of the Eastern States Farmers Exchange.

The firm took advantage of the fact that there was an old coal shed complete with roof and cement bin located on a side hill so the hopper car was higher than the truck body. The problem was how to get it from the car into the farmer's truck without wasting time or feed. A plywood chute proved too awkward and wasteful. A 6-in. worm gear proved too slow.

It was decided to use an old 1-ton-a-minute coal unloader equipped with a rubber composition belt and an extension at each end. Mr. Schwarz says the unloader is rolled out onto the platform beside the hopper car and the conveyor extension is slid under the hopper. An electric motor works the conveyor. With the bulk truck positioned in the pit below the unloader, the feed flows directly from the hopper car to the truck.

Pellets flow out at nearly a ton a minute; mash takes a little longer, since it has to be poked down in the car. An aluminum rod is used for this purpose.

The hopper car track is on a slight downgrade so the car can be moved by hand to empty all hoppers. Each grower pays $5 per car for use of unloading equipment.

Millers, Feed Dealers Plan N.Y. Convention

BUFFALO—The "Grain Bank" will receive discussion at the mid-winter convention of the Mutual Millers & Feed Dealers Assn. March 9, according to a recent announcement. The convention will be held at the Statler-Hilton Hotel here.

Other program plans for the convention include a talk by H. Munzesheimer, MMC Sales Corp., Buffalo, on his travels in Europe; a group discussion on "Grain Storage as Handled in the Western New York Area," and a talk on salesmanship and merchandising.

PIGS FOR ITALY—The Peter Hand Foundation in Chicago has sent three spotted Poland China and three Chester White pigs to Italy's National Association for the Production of Animal Feed. The Italy group requested purebred swine stock to improve the Italian pork breed. Shown here getting ready to load the swine on an air freight flight to Italy are Dr. R. A. Rasmussen, vice president in charge of livestock research at the Peter Hand Foundation, and Carol Carraro, an airline hostess.

Ex-feed Man Makes Built-to-Order Bins

ROCKVILLE, CONN.—An ex-feed man, Henry Abuza, is supplying northeastern feed companies with built-to-order bulk bins delivered to the customer's farm.

The feed company sends in the requirements and Mr. Abuza's Connecticut Bulk Feed Service builds the bin to specifications, usually delivering within a week.

On local orders, he usually delivers a precut bin, but beyond a certain distance, he ships them, together with instructions.

Mr. Abuza is paid by the feed company, which collects from the farmer on a bag basis. His bulk bin service now is reported to be building more than 1,000 bulk bins annually.

Record Soy Processing

MASON CITY, IOWA—A record amount of soybeans was processed at the North Iowa Co-Operative Processing Assn. plant here the past year, but net earnings for the year were down about $70,000, it was reported at the annual stockholders' meeting by Glenn Pogeler, general manager.

Lower processing margin was given as the main reason for the decrease, involving increased cost of beans to the plant and lower selling price for soybean oil.

Total earnings for the year were listed at $268,704.68 as compared with a record $339,943.32 earned in 1958. In contrast, 2,820,848 bu. of beans were processed this year, an increase of 200,000 bu.

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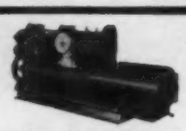

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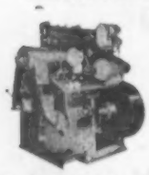

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Current Research Projects Discussed During Missouri Sheep Day Sessions

COLUMBIA, MO.—A progress report on some of the current research with sheep at the Missouri Agricultural Experiment Station was issued during a Sheep Day program at the university.

A variety of tests, including those on worming, pelleting, adding salt to lamb fattening rations, comparing hormones and comparing soybean oil meal with alfalfa plus shelled corn, were reported upon.

An organic phosphate called Ruelene was more effective than phenothiazine for worming lambs in one test. The chemical is experimental and has not been approved for general use.

Discussing the worming test results was Dr. C. V. Ross, in charge of sheep research at the university.

Both lambs on pasture and lambs in dry lot were used in the tests comparing Ruelene with phenothiazine. Lambs in dry lot treated with Ruelene made somewhat better average daily gains—.5 lb. compared to .41 lb. They also graded slightly better at the end of the test. These lambs also appeared much thriftier during the first two weeks of the six-week test.

Better Results

Ruelene also gave better results than phenothiazine with lambs on pasture. The organic phosphate did a better job of reducing worm egg counts. Average daily gain of lambs treated this way was 45% greater than phenothiazine-treated lambs. Lambs getting Ruelene also graded slightly higher at the end of the experiment.

In another test, lambs on pasture received a phenothiazine-salt mixture to which dicalcium phosphate had been added. The addition of the dicalcium phosphate gave slightly better gains and slightly higher live grades. Homer Sewell, extension livestock specialist reporting the research, said Wisconsin trials also indicated some benefit from adding dicalcium phosphate to a phenothiazine-salt mixture.

Reporting on other university research, Melvin Karr, a graduate student, said lambs preferred pelleted rations over ground rations in a creep feeding test. Lambs ate 28% more of a corn-soybean meal-bran ration when it was pelleted. The ration the lambs seemed to prefer most in this test was made up of 60% corn, 30% soybean oil meal and 10% bran.

Lambs ate all of the corn-soybean meal-bran mixtures more readily than straight ground corn.

In another creep feeding experiment with suckling lambs, Mr. Karr reported lambs seemed to like a ration better when a sweetener had been added. Best-liked ration was made up of 55% ground shelled corn, 30% soybean oil meal, 10% wheat bran and 5% cane molasses.

In another part of these tests, lambs were fed two different levels of Aureomycin in their feed. Little difference was found in rate or efficiency of gain. Control lambs getting no Aureomycin gained an average of .48 lb. per day compared to .51 lb. per day for lambs getting 30 mlg. of Aureomycin per pound of feed.

Mr. Karr said the results supported previous work which showed little advantage from using Aureomycin when lambs were thrifty.

Purpose of one test was to determine the value, if any, of adding 1% of salt to lamb-fattening rations. Results showed no value from adding the salt. In fact, lambs not getting the salt required 4% less feed per 100 lb. of gain and shrank one-fourth less from feedlot to market.

Stilbestrol Better

In a hormone test comparing Stilbestrol and Hexestrol implants for fattening lambs, the Stilbestrol gave slightly better daily gains.

Lambs on the Hexestrol treatment required a little less feed per pound of gain. These carcasses from Hexestrol-implanted lambs had better finish, white color, were firmer and were not as mature.

A large-scale experiment using 208 lambs on various rations was reported by John Rea, graduate student. Lambs on a high-energy ration gained faster and more efficiently than similar lambs on a low-energy ration. And lambs getting a 14% protein ration gained faster and yielded a higher carcass percentage than those fed an 11% protein ration.

The combination of high energy and 14% protein gave the best results of any of the rations.

Lambs getting hormone implants showed no side effects. Adding enzymes to the rations made no effect on results.

Dr. Ross reported a test which compared soybean oil meal with alfalfa, plus shelled corn as a protein supplement for wintering ewes on corn silage. Ewes on either of the supplements produced strong healthy lambs. And there was little difference in final weaning weights of lambs.

Ewes fed soybean meal made slightly better gains during pregnancy and produced heavier single lambs than lambs getting alfalfa-corn. There was little difference in birthweight of twins.

HONORED—John K. Westberg (center), sales manager, feed ingredient department, International Minerals & Chemical Corp., Skokie, Ill., receives certificate of honorary membership in the Lariat Club (honorary animal science club) at the recent annual Washington State University Student-Stockman Banquet. Doug Bennett, Washington State animal science student, makes the presentation, while Mrs. Westberg looks on. Mr. Westberg is one of four men honored at the banquet "in recognition of their service, directly or indirectly to agriculture, rural life or the livestock industry." His picture has been hung in the Animal Science Hall of Fame on the campus. The banquet was part of a short course program for stockmen. International distributed special notebooks among 234 short course enrollees and 85 guest professors.

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FEED CONTROL

(Continued from page 36)

during this period? The dealers should make certain such products are available at all times in their warehouses so that when feeders need them they can be readily supplied. The cranberry episode arose because a few growers failed to observe directions. Every possible precaution should be taken to make certain feeders are completely aware of these directions and every possible means taken to avoid any slip in such use.

Feed Officials—Feed officials have the responsibility of seeing to it that no feed is registered or offered for sale without proper labeling. It can be said to the credit of the Food and Drug Administration and feed officials generally that one of the reasons why the feed industry appears in an excellent position in this regard is because of the fine cooperation between the manufacturer and the feed officials in bringing this about.

It is suggested a feed official should not accept a registration of a feed containing a drug unless the manufacturer of such feed can show he has a complete line of feeds including a non-medicated feed to use during the period immediately before marketing if one is called for or has made other provisions for supplying such feeds.

Likewise, should not inspectors in the field inquire of each dealer what provisions he has of supplying feeders using medicated feed with similar non-medicated products for use during the drug free feeding period? This might conceivably be carried to the point of issuing a stop sale notice for medicated feeds in a feed dealer's warehouse where the feed dealer did not appear to be sufficiently aware of this problem and have adequate provisions for meeting it.

We in the feed business have our house well in order. Continued vigilance will keep it that way.

Drugs in Custom Mix Feeds

A question has been raised as to the use of "New Drugs" in a custom mix or a mixture made especially according to the formula of the purchaser. Sale of "New Drugs" is limited to users who have received an effective new drug application (NDA). Effective new drug applications are given for specified uses and these do not include a custom mix. The answer, therefore, is "no."

The same is true with combinations of drugs that have not been cleared with FDA. Any feed mixer who makes a customer formula feed using such drugs in combinations not approved and such drugs come from other states—that is, shipped in interstate commerce—is clearly in violation of the Federal Food, Drug and Cosmetic Law.

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SPRINGDALE, ARK.—Cliff Peck and his wife have been named east coast and overseas distributors for Brown's Ledbrest Cornish Cross Breeder Cockerels, according to an announcement by Gail E. Brown, vice president of Jeff D. Brown & Co., Inc.

Cliff Peck

Mr. Peck, whose hatchery is in Niantic, Conn., has been in the poultry business all his life. He first worked as a boy in the egg laying test group of the University of Connecticut. Later, he was employed by two breeding farms in New England. In 1945, he went into the hatchery business for himself.

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JOE BROOKS

BY AL P. NELSON

Check on What Others Are Doing

The winter night was cold, and Joe was mighty glad he had an automatic furnace in his home, so that he could keep the house warm all through the night. As Mary, Joe and the twins ate the evening meal in the roomy, colorful kitchen, they could hear the wind howling around the corners of the house.

"Man," Joe said, "one thing we can sure count on here in this area is one or two or more big blizzards and cold spells each winter."

Mary smiled an acknowledgment and passed the roast beef to Joe. He took another piece. So did the twins. All the family were hearty eaters which pleased Mary.

"Joe," Mary said when Joe was attacking the blueberry pie, "if you help me with the dishes, I'd like to have a business conference with you."

Joe looked up hurriedly. "What idea have you got this time, woman?" he asked. He knew from past experience that when Mary mentioned business, it was usually an idea he could get free—free, that is, until she spotted a hat, or suit or coat or dress she liked. When that happened Joe paid through the nose, but he figured he came out ahead in the long run.

"Dishes?" she parried.

"How about these big healthy twins doin' the dishes for a change?" Joe asked. "Then we can get right down to discussing that business idea of yours, Mary."

"Ow!" howled Jimmie, "I've got stacks of homework to do. I'll be up till midnight studying the way it is."

"Me, too," wailed Joe, Jr. "That history teacher must have it in for us. Twenty-seven pages of American history. And read a lot of David Copperfield. Yow!"

Joe sighed and a look of defeat crept over his face. "Okay," he said. "I'll help Mother. You boys go up and study. But don't let me hear that radio goin' for any western programs, or I'll come up there and tear off the roof. I mean it."

Both boys bit their lips and started for the stairs, as though the end of the world had come. Why, wondered both, was their father so smart in smelling out secondary motives.

After the dishes were finished and Joe had wiped about 40 of them and six big pans, plus a couple of frying pans, he said, "Well, I did my part. Where's the business idea?"

Mary Makes Book

"Be with you in a minute," Mary said. She disappeared into the downstairs spare bedroom and came out carrying a large scrap book whose cardboard pages were strung together by thick black string.

"What in the world is this?" Joe asked. "A family album?"

"No, nothing like that," Mary smiled.

She sat down on the sofa beside Joe and opened the book. "I took all your old trade magazines that you brought home to read and clipped out articles I thought you'd like to save. Then I pasted them into this book under certain divisions. Like what I did?"

Joe whistled and began thumbing through the pages. He found one section devoted to articles on service to farmers. Another covered mill improvement articles. Collections were covered in a separate section and so was the matter of sales training. Selling in the field articles were numerous, covering many phases of route work. Joe especially liked a number of sample collection letters, some of which he realized quickly he could use as they were or adapt to his use.

"Mary," he said with respect, "this is what I have wanted to do for a long time, but I just never got around to it. Why this is a book my men and I can use for study—every one of us."

His wife beamed. "That's what I figured, Joe. There are articles here that Windy Kramer, the routeman, can use for a guide. And some sales training articles for you. You are always looking for new training meeting subjects you say. There are even some articles on mobile milling for Moeller and Frenchy Le Fave."

Can Use at Meeting

"I can make use of this book next week at the monthly sales training meeting," Joe said. "I see a couple of articles there that I can quote from. Mary, where did you get the idea?"

His wife smiled and patted his hand. "Well, it's the beginning of the new year," she said, "and that means clean-out time. I started to throw out magazines that had accumulated. The stack of trade and business magazines in the bedroom was 3 ft. high. I knew you had looked through them, but I hated to throw them away."

"That's it," Joe said. "I read those magazines; remember some of the things I read, and forgot some, too. I always mean to save the best articles for reference, but I get busy and never get around to clipping them."

"Exactly what I thought," said Mary, "and so I got out my scissors and went to work. I had to pay $5.50 for the right kind of scrap book, but I wanted the exact type so we could add pages if need be, Joe."

The feed dealer smiled. "I sure will add some. Mary, how about if I write on the margins of the magazines each week or month which ones I want saved and into what mill or store division they are to be placed? Would that help? Would you then clip them and paste them in?"

"I'd be happy to," said Mary. "Why shouldn't we make use of these splendid articles which can show us how others operate their business for profit, etc.? Then we can add their ideas to our own and make more profit."

"Well said, for an alert vice president," Joe chuckled. "Come closer, while I give you a kiss for your idea."

Mary stiffened. "A kiss! Oh, Joe, I want more than that. There's a sale next week at the Leader."

"I was afraid of that," Joe grumbled, "but—"

Mary smiled. "I'll take the kiss, too, dear," she said sweetly. "Women are always looking for bargains, don't you know?"

Movie on Liquid Feeding Available

NEW YORK — Liquid feeding is presented in a new 20-minute, 16 mm., full-color, sound movie produced by Feed Service Corp., Crete, Neb., and U.S. Industrial Chemicals Co., New York City.

In the film, viewers are given a cross-country roundup of the liquid feeding program for ruminant animals. Results being obtained by farmers and feeders with new "Morea" liquid supplement are shown and described.

Beef feedlot operators, sheep producers, dairymen and other farmers are interviewed to give a picture of liquid feeding in all areas. College tests with this liquid feed also are reported.

Philip C. Anderson, originator of Morea liquid feed and president of Feed Service Corp., explains how ethanol (ethyl alcohol) in the supplement "acts as a hydrogen donor to speed up rumen fermentation." He tells how the liquid feed enables ruminant animals to "make more efficient use of grains and roughages to produce higher-quality meat and more milk through fast, low-cost gains."

The new film may be obtained from Feed Service Corp., Crete, Neb., or U.S. Industrial Chemicals Co., 99 Park Ave., New York 16, N.Y. Requests should include a preferred and an alternate date for the film's use.

Sales Appointment

DECATUR, ALA.—L. A. Pockman Manufacturing Co. has announced the appointment of T. H. McClung to its sales organization. His territory will be Indiana, Illinois, Iowa, Kansas, Michigan, Missouri, North Dakota, South Dakota, Ohio and Wisconsin.

Mr. McClung is a graduate of Purdue University with a degree in agricultural education. He has experience in the farm field as an equipment salesman and in planning of commercial farm operations.

Prior to joining the Pockman sales organization, Mr. McClung was sales representative for the Ranger Equipment Co. Before that, he was with Ralston Purina Co., promoting the caged layer program.

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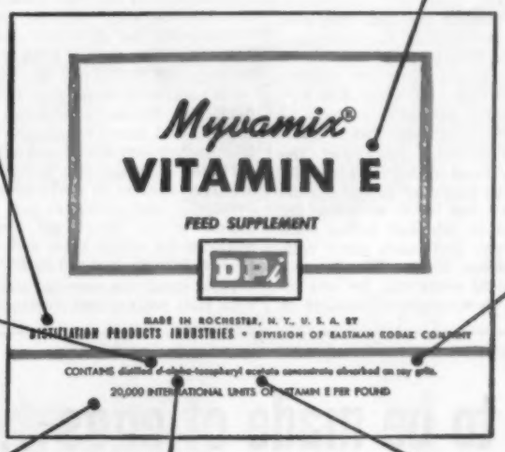
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The "acetate" means that the vitamin E in *Myvamix* is really stable. Tests show no loss of potency even after storage in finished feeds for six months at 100 F. The full potency you put in the feed is there when the feed is fed.

Feed Man-Veterinarian Cooperation

"Veterinarians and feed dealers can cooperate if they will realize what function each fills in the poultry and livestock industry. There is no need for us to be at each other's throats."

By Al P. Nelson
Feedstuffs Special Writer

Two men are at the top of the service list of almost every farmer who raises livestock or poultry.

One of these is his feed supplier. The other is a local veterinarian.

These men have more contacts with the average farmer perhaps than almost any other business or professional man in the community. Each is called upon by the farmer to aid him in the ever-present problem of farming for highest profit. Each is asked, too, to help in the battle against poultry and livestock diseases. Each also is asked about poultry and livestock nutrition.

How friendly are these two men who are such valuable helpers to farmers?

Do they cooperate? Do they compete for business? Are their interests in conflict? Is there a sound basis for mutual cooperation?

I asked these and other questions of feed dealers and manufacturers on an extensive trip through Minnesota, Iowa, Wisconsin, Illinois, Indiana, Ohio, New York, Pennsylvania, West Virginia, Virginia and Kentucky. I received some very interesting answers. Here are some of the findings:

In many sections of the country, feed dealers and veterinarians are cooperating so that together they can do a better job of handling disease and nutrition problems. In other sections, there is friction between dealers and vets who regard one another as bitter competitors and, in some cases, these competitors will not speak to each other.

Younger veterinarians are more likely to cooperate with feed dealers than older vets. This probably is due to the early experiences of some of the older vets who think that the entire poultry and livestock disease problem field, and the sale of remedies is their special province. The mere fact that the feed dealer stocks remedies is a sore spot with some older vets who have many of these products on their own shelves.

Some vets feel that feed dealers who enlarge current remedy stocks are infringing upon vets' functions. Some feed dealers feel that vets who sell mineral feeds, etc., are encroaching upon the dealer's territory. Whom should the farmer call when disease strikes his herds or flocks? You will get an amazing variety of answers to this question from many dealers.

Dexter Obenhaus, owner of the Community Feed Mill, Princeton, Ill., and a former president of the Illinois Feed Assn., has been working for many years to establish better relations between feed men and vets. When president of the Illinois association several years ago, he was instrumental in arranging a number of panel discussions between key dealers and vets to air their problems and to try to establish a basis for better cooperation.

Recently, Mr. Obenhaus appeared on a panel program of this sort staged by another Illinois dealer and gave his views on dealer-veterinarian relations.

Vet Diagnoses

"It is the business of the veterinarian to diagnose poultry and livestock diseases," points out Mr. Obenhaus. "He is qualified to do this. On the other hand, it is the reputable feed dealer's job to handle nutritional problems for poultry and livestock. The feed dealer who tries to diagnose poultry and livestock diseases is stepping out of his field. Likewise the veterinarian who tries to prescribe nutritionally for livestock and poultry is stepping into a field in which he is not an expert.

"If each man would stay in his own field, the farmer would get better service, and there would also be less friction between dealer and vet. There certainly is need for qualified vets and feed dealers in every area where livestock and poultry are raised. Name calling won't get any more business for either man, and certainly the farmer won't benefit."

How about the average feed dealer who sells poultry and livestock remedies? Should he discontinue such lines in order to cooperate with vets. Mr. Obenhaus doesn't think so. He says that the dealer should stock and sell such lines which are made by reliable manufacturers. There are many reliable remedies which dealers sell to farmers for control of poultry and livestock diseases, especially in their beginning stages. Directions on the labels, when followed by farmers, do prevent many poultry and livestock diseases. Prevention remedies are taken for granted by most farmers in their poultry and livestock programs, and the reliable dealer can sell his share of these. He can sell, but he should not prescribe.

On the other hand, when disease gets a strong foothold, then the farmer may wish to call the vet, states Mr. Obenhaus. He says that vets especially want the selling and administering of serums, etc., left to them, as they are licensed in many states for this duty. The vets also want to sell the instruments which are necessary in administering serums.

Mutual Understanding

If the feed dealer leaves the selling of serums, instruments, etc., to the vet, he'll find that he'll get along much better with him, Mr. Obenhaus believes. In his own community there are six vets, Mr. Obenhaus says, and he is on good terms with four of them. If he thinks a farmer should call a vet, Mr. Obenhaus advises the farmer to do so. He also says that the four vets often refer nutritional deficiencies to him.

"Veterinarians and feed dealers can cooperate if they will realize what function each fills in the poultry and livestock industry," Mr. Obenhaus states. "There is no need for us to be at each other's throats."

There are a number of instances where feed dealers and veterinarians have joint places of business. A veterinarian rents office space from Litchfield Seed & Feed Co., Litchfield, Minn. Both the vet and the

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feed firm benefit from the farm traffic that each attracts. In some instances, veterinarians are in the feed business. This is the case at the Corn Belt Feed Co., Boswell, Ind., where a veterinarian is the head of the company.

Eddie Deep, owner of the Farmers Feed & Implement Co., Lebanon, Ky., states that the feed dealer who takes poultry disease courses soon learns how difficult it is to assume that he can diagnose poultry diseases correctly.

"Many times customers come to me and ask to get a remedy for respiratory trouble in poultry," Mr. Deep says. "I recommend the stock I have, and it usually does the work. This makes me feel very good to be able to help my customers.

"But when I attended a poultry service school, took the examinations, etc., and learned the experts would not try to identify a poultry disease until they made laboratory tests, then I became very cautious about diagnosing any disease. Now when I am in doubt I always refer the customer to a vet. I've made friends of the local vets and we get along very well. I still sell labeled poultry and livestock remedies, but the vets get the tough cases, for that is their business —diagnosing and prescribing."

One Indiana feed firm which manufactures its own feed for regional distribution has a qualified nutrition expert who can post poultry and run bacterial but not virus cultures. This firm is able to handle many types of poultry disease problems, but they also call in a veterinary part of the time. They find it pays to do this.

Cow Pool Veterinarian

Carroll Morris, operator of Fashion Farm Cow Pool, Meservey, Iowa, housing 830 cows, and who is also a co-owner of a feed mill, has a full-time veterinarian to help him keep the cows in a healthy condition. Yet he and his father have many poultry and livestock remedies for sale at their Meservey feed mill.

At Oakland, Ill., Max and Fred Miller, operating a feed mill and also a much-publicized hog motel, have a supervising veterinary service for the 500 hogs which farmers have put into the motel on contract. This veterinary checks the hogs and advises on disease problems. As feed mill operators, the Millers also have poultry and livestock remedies for sale.

"There are not enough veterinarians in every locality to leave all poultry and livestock disease problems to them," states one feed dealer. "Worming, colds and many other disease problems can be handled for the most part by prepared remedies and the feed dealer can safely sell them and know what he is doing.

"Label instructions tell the dealer and the farmer how the remedy is to be used. The farmer actually has learned to look to the feed dealer for such remedies, and he has had good results from this trust. So he will continue to buy from the dealer to a considerable extent. For more serious poultry and livestock disease problems, of course, the farmer should consult a vet. We always refer such problems to a vet in our area."

Feed dealers who have a trained poultry service man say that farmers have faith that such a man can look over their flocks and tell them what to do to handle many disease problems. They know, too, that such a poultry man will do the job more cheaply in most cases than will a vet. "Save the vet for the more serious poultry and livestock disease problems," says one dealer. "They can't possibly cover all the minor problems. They're busy enough the way it is now."

N. Orrin Baker, president of Bakers, Inc., Leland, Ill., a firm with a new custom plant and also a commercial feed mill, works closely with veterinarians in his area. He reports that, as a result of this cooperation, there are occasions when vets send feeders to his mill to have certain medicants mixed into their feeds.

Survey Summary

Summing up the results of the survey, it would seem that:

Some feed dealers and veterinarians are cooperating in serving the farmer, but generally there is still a long way to go before such cooperation becomes extensive.

Many dealers and vets feel that each has a certain field in which to operate. The dealer or the vet who steps outside of his field consistently is bound to arouse the hostility of the other.

There are efforts being made by some dealers and veterinarians to get together to explore ways and means for greater cooperation, so that they can help the farmer produce more profitably.

Joint meetings of feed dealers and vets at conventions of each group can perhaps pave the way for better understanding.

Finally, how a feed dealer gets along with the vets in his town will depend largely upon his own efforts. He should call on every vet and make his acquaintance and see if each can help the other in handling poultry and livestock disease problems.

Ten thousand feed dealers, each making a determined effort to get to know local vets better and talk over problems, could start a trend which could set a standard of ethics for the entire industry to follow, now, and in the years to come when a new generation of feed men and vets will take over the increasingly complex problems of feed and health products manufacture, sale and education.

NAMED PRESIDENT

SALT LAKE CITY, UTAH—Cecil S. Rushforth, sales manager, Utah Poultry & Farmers Cooperative, has been named president of the Utah Poultry Council. He succeeds Ralph Blackham of Moroni. Other new officers are O. A. Michelsen, vice president; C. K. Ferre, treasurer, and Dr. C. I. Draper, secretary.

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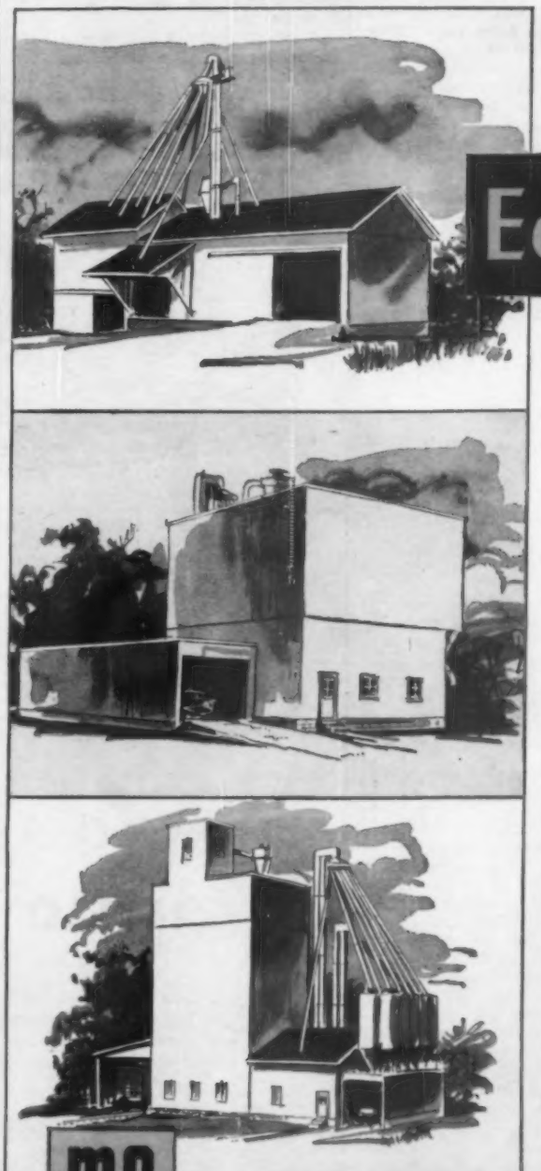

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Digestibility of Animal Fats and Proteins by Mink

● W. L. Loeschke, University of Wisconsin, American Journal of Veterinary Research, No. 79, Vol. XX, pp. 1086-1089, November, 1959.

ABSTRACT AND COMMENT

A series of digestion trials were conducted with groups of 10 male pastel mink in each trial to ascertain the digestibility of fats and proteins by mink using feed products commonly used on mink ranches. Fat digestibility was determined using two different basal diets, depending upon the type of product fed, and reflected the "true" digestibility after corrections had been made for the metabolic fat present in the feces.

Mink were placed in individual metabolism cages and subjected to seven-day feeding periods — two-day preliminary periods and five-day collection phases being used. A different type of basal diet was used to determine the coefficients of digestibility for protein with no correction being made for protein excretion.

The results showed the following coefficients of true digestibility according to the experimental diets and technique used.

Processed fats:	
Fish oil (stabilized, Viobin)	97.2 ± 0.4
Lard (choice white grease)	95.8 ± 0.5
Tallow (bleachable fancy tallow)	91.9 ± 0.6
Meat product fats:	
Horse meat	95.5 ± 0.4
Chicken by-product	95.4 ± 0.4
Beef lung	93.7 ± 0.8
Beef rumen	93.2 ± 0.4

It is obvious that mink are well able to utilize both animal and fish fats quite efficiently.

On the other hand, mink are not able to digest protein as efficiently as they digest fats, and there is a considerable amount of variation in the coefficients of apparent digestibility in different animal products as shown by the experimental results:

Boneless horse meat	92.1 ± 0.2
Chicken entrails	89.3 ± 0.3
Ocean whiting	87.2 ± 0.2
Beef rumen	86.4 ± 0.7
Chicken heads	78.2 ± 0.6
Beef lungs	81.7 ± 0.5
Chicken feet	52.4 ± 1.1

It is also interesting to report the observations of the workers regarding the palatability of the various ingredients tested. Chicken entrails were highly palatable and readily consumed, and led the workers to suggest their use in diets for young mink kits since they are highly digestible and palatable. On the other hand, chicken feet are very unpalatable to many mink and they should not be used in young mink kit diets. Some mink refused to eat chicken feet even after a period of six days without alternate feed sources.

●

Timely and Worth Noting

Considerable interest in the use of "disease-free" pigs is currently being shown by some veterinarians, feed manufacturers and livestockmen. Some have contended that such pigs obtained by hysterectomy and raised in isolation under disease-free conditions would not survive on farms when removed from the laboratory disease-free environment.

Actually, many farms have been successfully repopulated with "disease-free" pigs with good results when taken to the farms after all other swine had been removed for at least six weeks. The leaders in the development of the disease-free approach to swine disease control have been the workers at the Hormel Institute of the University of Minnesota, and those at the University of Nebraska.

Since demand for such disease-free pigs exceeds the supply, many farmers have wondered how such boar pigs would function in their own herds so as to prevent any further increase in disease level of their herds.

A recent issue of the Journal of the American Veterinary Medical Assn. (Vol. 135, No. 10, pp. 504-505, November 1959) reports on the results of placing 21 disease-free boars in 19 farm herds.

At least 11 of these farm herds contained pigs with some degree of disease, and the boars adjusted to the environment on 12 of the 19 farms without incident. On three farms, the boars developed some leg stiffness but recovered in 7-10 days and became active breeders. No reports were obtained from three of the farms, and one boar went off

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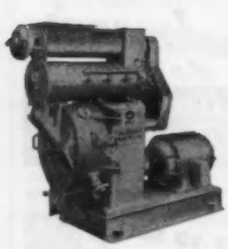

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P. E. McKamy

SALES MANAGER - MAGICIAN — Sales representatives of Prater Pulverizer Co., Chicago, were entertained by P. E. McKamy, industrial sales manager, who did a magical act at the company's annual sales banquet. Mr. McKamy, performing under the name Pauly Mack, did many "sleight of hand" tricks. The sales banquet in Chicago marked the beginning of Prater's 35th year of service to industry.

feed for one week, but then recovered and became an active breeding boar.

This study from the University of Nebraska indicates that such disease-free boars will perform satisfactorily in conventional herds, and will permit the swine producer to maintain a high producing herd without introducing further disease from the boar source.

Because of the great interest in the subject of repopulation of farms with disease-free hogs, the University of Nebraska is sponsoring a conference Feb. 3-5, 1960, to determine the veterinarian's role in this new method of disease control.

More Feedings Up Gains in Experiments

RALEIGH, N.C. — Feeding a concentrate-hay ration in four equal portions a day gave dairy cattle better gains than a single feeding in three studies at the North Carolina State College Agricultural Experiment Station here.

In these studies, weight gains were increased by 59%, 49% and 18%. In the fourth study, feeding the entire ration or only the concentrate in four portions proved no better than a single feeding. Feeding milking cows more than twice daily didn't affect feed utilization.

"There's no simple explanation of this increased growth," say researchers R. D. Mochrie, Dr. W. E. Thomas and Dr. H. L. Lucas, Jr. "In fact digestibility apparently was lowered.

"But increasing production by more frequent feeding is an interesting possibility—especially in light of present trends in mechanical feedings."

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D. F. Stauffer Heads Hercules Department

WILMINGTON, DEL. — The appointment of Donald F. Stauffer to be in charge of Hercules Powder Co.'s naval stores department technical service and development work in Canada was announced here by Richard T. Yates, the department's director of sales.

The newly-created position was made in view of "growing industrial markets in Canada and correspondingly increasing requirements for technical assistance," Mr. Yates said.

Mr. Stauffer will function as the coordinator between all divisions of the naval stores department and Canadian customers and distributors. He also will handle technical problems involving naval stores' products in Canada.

A graduate of Ohio State with a B.S. degree in chemical engineering, Mr. Stauffer also holds a M.S. degree in chemical engineering from Princeton. He joined Hercules in 1950 as a technical service representative.

IMC Appointment

SKOKIE, ILL.—International Minerals & Chemical Corp. has announced the appointment of Fred A. Koechlein as general credit manager of the corporation.

Mr. Koechlein, who since July 1 had been manager of planning for the company's phosphate operations, has had 30 years of experience with IMC in sales, production and purchasing. He will be responsible, in his new post, for administration of the company's credit policies.

FEED MILL DESTROYED

HANFORD, CAL.—A $100,000 fire destroyed the Salyer Land Co. feed mill. Building and equipment valued at $78,000 were saved.

Simonsen Appoints Regional Manager

QUIMBY, IOWA—Merle Simonsen, manager of the Simonsen Mfg. Co., Quimby, Iowa, reports that Kay Stevenson has been promoted to head the regional sales office for his company in Le Sueur, Minn.

Kay Stevenson

"Increased business in the north central states, especially in Minnesota, Wisconsin and northern Iowa, and the need for closer sales and service supervision in this area have made this expansion necessary," Mr. Simonsen added. Simonsen Mfg. Co. makes a line of bulk feed bodies and bulk fertilizer spreader bodies.

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Magazine Honors Dr. G. F. Combs

COLLEGE PARK, MD. — Notable contributions to the field of poultry nutrition have brought Dr. Gerald F. Combs the Maryland Progressive Farmer "Man of the Year" award.

A researcher with the Maryland Agricultural Experiment Station and a professor at the University of Maryland, Dr. Combs [illegible] brought feed companies in b[illegible] producing areas the latest inform[illegible]on on feed.

Dr. Combs' research has resulted in information on feed formulation to help feed companies compete in a highly competitive field. His feed formulas made possible the record of producing a pound of meat from 1.86 lb. of feed at the Maryland Salisbury Experiment Station.

Dr. Combs was instrumental in pointing out the necessary close association between the caloric and protein content of rations. His experiments were among the first to show the economic advantage of adding fats to broiler diets. The feasibility of adding cooked soybeans to the ration was demonstrated by Dr. Combs and his associates at College Park and Salisbury Experiment Stations.

The Progressive Farmer makes this presentation each year to honor men in the field of agriculture for outstanding contributions.

Arkansas Turkey Processor Honored

OZARK, ARK.—Ozark, Ark., recently gave an appreciation dinner honoring Harold Dodgen, manager of the Dodgen turkey processing plant here which is reaching its record of handling 450,000 turkeys.

Harold Snyder, Dardanelle, was the principal speaker.

Mr. Dodgen started raising turkeys while he was operator of a frozen food business in Ozark. He began processing turkeys on a small scale in 1948, and in 1957 he closed his frozen food plant and started devoting full time to producing and processing turkeys. A new plant was constructed two years ago.

Some Hog Farmers Mixing Own Feeds

FLORENCE, S.C. — Hog farmers in this area are said to be growing more grain and feeding more home-produced rations with purchases confined chiefly to supplements and additives.

Many of these farmers, according to H. F. Livingston, Florence County agricultural agent, are grinding more of their own feed and building rations from the ground up, using automatic feed mills that can produce a day's supply for several hundred hogs in an hour's time.

Said to be typical of the hog farming operations is the Robert Harllee & Sons farm, a partnership of two brothers, Harry and Hammond Harllee, near Black Swamp.

They stepped up production 12 years ago to use their own grain and in 1958 planted 230 acres of corn and 90 of barley to finish out 675 pigs. Using all modern equipment, the latest addition was an automatic feed mill.

California Gets Grant

DAVIS, CAL.—The school of veterinary medicine of the University of California has accepted a grant from American Cyanamid Co. to test chemotherapeutic agents for the control of pleuropneumonia-like organisms causing infections in poultry. The studies are under the direction of Dr. Henry Adler.

The organisms, referred to as PPLO, cause chronic respiratory disease in chickens and infectious sinusitis in turkeys. Dr. Adler's aim is to develop a PPLO vaccine to help combat these diseases.

A couple of sailors laying over for a day or two in Sweden decided to go to church. Knowing no Swedish, they figured to play safe by picking out a dignified-looking gentleman sitting in front of them and doing whatever he did.

During the service the pastor made a special announcement of some kind, and the man in front of them rose. The two sailors quickly got to their feet, too—only to be met by roars of laughter from the whole congregation.

When the service was over and they were greeted by the pastor at the door, they discovered he spoke English and naturally asked what the cause of the merriment had been.

"Oh," said the pastor, "I was announcing a baptism, and asked the father of the child to stand."

◆ ◆ ◆

Brooklyn sailor: Whudya do before ya jerned da Navy?

Midwestern sailor: I worked in Des Moines.

Brooklyn sailor: What kind of moines, iron or coal?

◆ ◆ ◆

A drunk came into a bar and said to the bartender, "Set 'em up all around, give me a drink, and have one yourself."

This went on for several rounds and the bartender told the drunk he owed him $17.50.

"I don't have any money," said the drunk amiably. The bartender reached across the bar, hit him in the nose, and threw him out of the bar. In a little while the drunk returned.

"Well, what do you want now?" growled the bartender.

"Set 'em up all around and give me a drink, but you can't have one this time. You get mean when you drink."

◆ ◆ ◆

James Whistler, of painting fame, was proud of his knowledge of French. In a Paris restaurant he ordered dinner and became very angry when a friend tried to help the waiter understand what he was saying.

"I am quite able to speak French without your assistance," Mr. Whistler said.

"That may be," answered the friend, "but I distinctly heard you place an order for a flight of stairs."

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PELLETING

(Continued from page 24)

"aging" or "binding" of some drugs in certain mash and pellet formulas. This is not to be confused with potency losses due to decomposition. Rather, the drugs seem to be tied up by some physico-chemical linkage to protein or carbohydrate fractions in the feed. Extraction methods which are satisfactory for fresh feed blends do not extract all of the drug present in aged samples. More drastic methods are required, such as use of hot solvents, special solvent mixtures and/or overnight extraction. The nitrofurans and diethylstilbestrol are examples of drugs which have required such assay modifications for older samples. This is a problem in industrial and regulatory laboratories which have no knowledge of sample composition or age.

A common practice in many laboratories is to finely grind all samples on receipt. These are then stored on the shelf at room temperature until a sufficient number have been accumulated to justify running a specific antibiotic, vitamin or drug assay. Several days, and even weeks, may elapse in the interim. This has resulted in partial decomposition of some micro-ingredients due to the more intimate contact and increased surface area caused by milling. In our work, all samples are refrigerated or frozen until assayed. Milling is performed only on samples ready for immediate assay. Our experience over the years has convinced us that these are desirable precautions.

DISCUSSION—From the preceding data gathered in the industry survey, it is apparent that feed pelleting operations may be more severe in many cases than is generally realized. Reduction of fines recycled is probably a major area meriting research. Feed manufacturers would certainly welcome information on this from tests by university workers and/or machinery manufacturers.

In many feed mills, it may be found advantageous to obtain temperature and moisture readings on various formulas. These observations, combined with measurements on percent fines recycled per batch or run of any given formula, could well suggest means of improvement. Aside from the value derived via reduced micro-ingredient degradation, a reduction in fines recycled would also be reflected in increased production rates. The savings accruing from reduction in fines would more than offset the slight cost of detailed observations on the process.

More attention is invited to the question of uniformity of meal prior to pelleting. The use of 2-3% added fat in recent years, in addition to nutritional advantages, has provided unsuspected added benefits via increased resistance of meal to ingredient segregration in numerous cases. Another factor contributing to non-uniform pellets and crumbles is the continuous recycling of large amounts of fines. Comparative assays of meal, pellets and fines can be very helpful in pin-pointing sources of difficulties.

It is recommended that use be made of a large number of small individual samples per batch or run, rather than a few large composites. Existing assay methods should be carefully checked in the feed mill laboratory to insure applicability in the presence of fat, molasses, binders, other drugs, etc. The same precautions should be clearly pointed out to any private laboratories to whom samples are sent. Such suggestions, plus detailed feed composition data, will be appreciated by every control chemist.

CONCLUSIONS—Based on industry estimates of feed storage life, formulas should be adjusted to maintain micro-ingredient potency for at least 2-3 months. Prompt feeding of pelleted rations is obviously desirable plus adequate inventory control measures to insure rapid, systematic turnover. These will help assure maximum benefits from the many products of science and technology which are included in modern commercial feeds.

♥ ♥

ACKNOWLEDGMENTS

The author wishes to acknowledge the advice and encouragement of Dr. H. G. Luther and Warren M. Reynolds of the Pfizer Agricultural Research and Development Department, without which this report would have been impossible.

Many individuals and organizations of the feed industry are also sincerely thanked for their interest and cooperation in contributing data and suggestions for this report.

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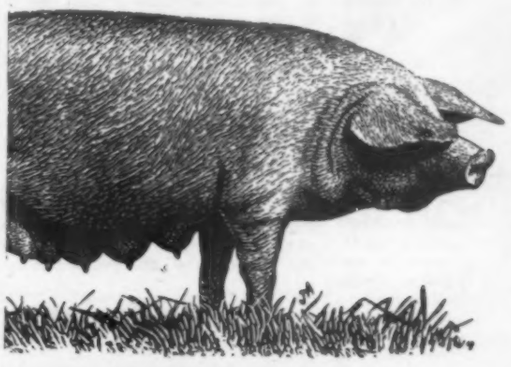

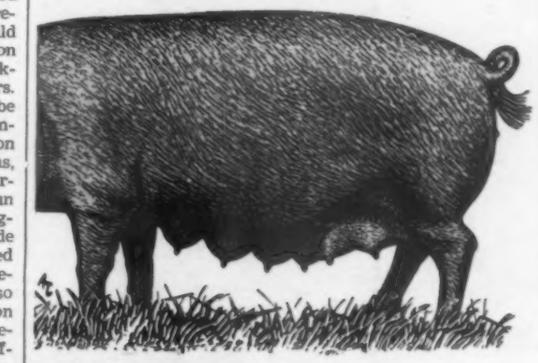

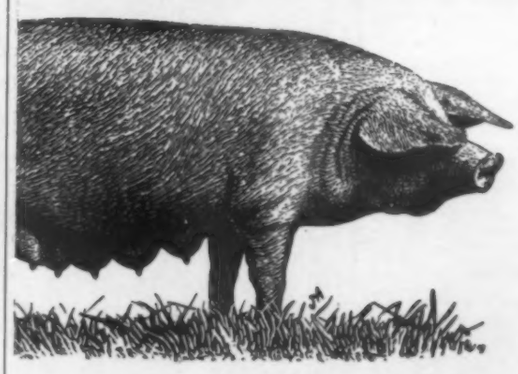

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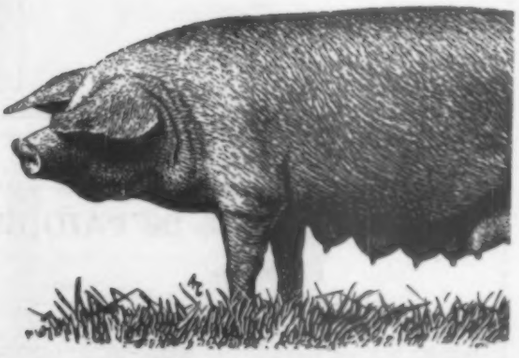

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No. 7767—Automatic Pelleting

The design of a control system for completely automating a pellet mill operation has been announced by Sprout, Waldron & Co., Inc. The system is said to permit going to peak horsepower and steam, giving consistent high quality and production of pellets. The automatic pellet mill is designed to operate, after manual startup, without requiring the attention of the operator, and to maintain the pre-set optimum motor current load and temperature values established. Sprout-Waldron notes that it is not in the instrument business but that its research was conducted to find a way to consistently get maximum quality and production with a minimum of operator attention. The company's engineers have put together a simplified kit which shows typical arrangements and wiring diagrams. This kit also contains suggestions on application of the controls, and it lists instrument manufacturers from whom the components may be purchased. Copies of the kit are available without charge. To obtain a copy, check No. 7767 on the coupon and drop it in the mail.

No. 7760—Hay Shredding Device

A device that shreds from three to five whole bales of hay per minute is now standard equipment on Daffin Feedmobiles, announced Daffin Manufacturing Co. Called a "Roughage-izer," the device is mounted just ahead of the Feedmobile hammermill at the top of the unit's travelling feed table. It reduces all types of hays and rough fodder for faster texture grinding, the company says. It receives whole bales, making it unnecessary to cut twine. For more information, check No. 7760 on the coupon and mail.

No. 7759—Piperazine Product

Rhodia, Inc., has introduced a Piperazine product called "Rhodasol 34." The product is a concentrated, aqueous solution to be used for formulation of wormer solutions. The product, plus an equal volume of water, prepares a 17% solution for bottling. It is available in 54 gal. quantities. For more information, check No. 7759 on the coupon and mail.

No. 7765—Conversion Table

A wallet-sized reference table for converting the bag-per-minute rate of filled multiwall bags to tons-per-hour is now available from St. Regis Paper Co. The table was designed by the company's bag division as a guide for production, materials handling, purchasing, research and engineering planning personnel. It lists the ton-per-hour rate of from one to 30 bags per minute, for 100, 80 and 50 lb. bags. The table is available by checking No. 7765 on the coupon and mailing.

No. 7763—High Energy Milk Replacer

Western Condensing Co. announces a "Super Calf-Kit" which is produced under a manufacturing technique which allows the high fat and protein content to dissolve instantly.

The technique was developed after extensive tests, the company says. According to company literature, it is the first instant milk replacer developed for the dairy industry. For more information, check No. 7763 on the coupon and mail.

No. 7766—Chemical Dehorning Product

Hess & Clark announces the development of "Pol" to chemically eliminate horns without irritation to calves. When the product is applied and exposed to air, it forms a plastic coating over the horn button. It will not extract water from the tissues, will not run down the side of the head and will not rub off easily on the cow's udder while the calf is nursing, the company says. According to company literature, the product is 100% effective when used as directed, is easily applied by clipping the hair and putting on with a brush and dries quickly to form a tough waterproof film. Each package contains a brush for applying the compound plus directions for proper use. For further information, check No. 7766 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7731—Vibration inducer catalog, Martin Engineering Works.

No. 7732—Mental ability test, Aptitests.

No. 7733—Hopper brochure, Roura Iron Works, Inc.

No. 7734—Vitamin K premix, Heterochemical Corporation.

No. 7735—Material handling pallet, Rapid Design Service, Inc.

No. 7736—Calf creep feeder, H. D. Hudson Manufacturing Co.

No. 7737—Bulk Trailer Line, Fuller Co.

No. 7738—Poultry equipment, Poultry Equipment Sales Corp.

No. 7739—Bulk storage information, Leach Manufacturing Co.

No. 7740—Automatic bag hanger, Union Bag-Camp Paper Corp.

No. 7741—Pre-cut steel structure, Thoro-Speed Co.

No. 7742—Proportioning pump, B-I-F Industries, Inc.

No. 7743—Laboratory services brochure, Harris Laboratories, Inc.

No. 7744—Conveying pump, Fuller Co.

No. 7745—New package size, Hess & Clark.

No. 7746—Wire egg baskets, Tobias Enterprises

No. 7747—Electronic sensing control, Security Controls, Inc.

No. 7748—Weighing systems, Richardson Scale Co.

No. 7749—Box car loader, Stephens-Adamson Manufacturing Co.

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No. 7751—Flat belt conveyor, Richardson Scale Co.

No. 7752—Mobile egg unit, L. A. Pockman Manufacturing Co.

No. 7753—Udder sponge display, Sparta Brush Co.

No. 7754—Silage preservative, Taste Engineering, Inc.

No. 7755—Packaged premix line, Thompson-Hayward Chemical Co.

No. 7756—Poultry marketing calculator, Sterwin Chemicals, Inc.

No. 7757—Liquid feed movie, U.S. Industrial Chemicals Co.

No. 7758—Hopper car unloader, Ripco Air Systems.

No. 7761—Mobile feed mill, Barnard & Leas Manufacturing Co., Inc.

No. 7762—Long-term leasing plan, Myers-Sherman Co.

No. 7764—Mixing, weighing unit, Duplex Mill & Manufacturing Co.

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Ray Ewing Appoints Salesman, Distributor

PASADENA, CAL. — A new sales representative in New York and New England and a new distributor for its products in Colorado have been announced by the Ray Ewing Co.

J. F. Hourihan

James F. Hourihan has been appointed sales representative for New York and the New England states, according to an announcement by Jack Plonsky, executive vice president and general manager.

Mr. Hourihan came to the Ray Ewing Co. from the Maritime Milling Co., Buffalo, N.Y., where he had worked with the feed industry for several years. He will be working with Earl Reeves, eastern sales manager.

Feed Products, Inc., Denver, has been chosen distributor for the complete line of Ray Ewing products in Colorado and the neighboring area, according to Mr. Plonsky.

Feed manufacturers in this area have access to the services of the Ray Ewing nutritional service staff and can have their formulas handled through the company's electronic formulation service.

Automatic Hog Feeding System Weighs Feed

MADISON, WIS. — An automatic hog feeding system, developed by Marshall Finner, University of Wisconsin farm engineer, can weigh a specific amount of feed for each pen of hogs, carry the feed to the pens and distribute it in hog feeders, all with the turn of a control panel knob.

Mr. Finner and Donald Henderson, also a farm engineer, built the feeder to fit a 600-hog house designed by university agricultural extension service building specialists. They said the feeder does solve the labor problem for a farmer who has several hundred hogs in a central finishing house, and who is interested in limited feeding for possibly more efficient gains and leaner carcasses.

The two engineers pointed out that while it is fairly simple to set up conveyors to carry feed from a central hopper to the self feeders, such a set-up does not permit easy recording of actual feed consumption or easy adjustment of amounts of feed for limited feeding.

Farmers may want to limit their hog feed if current research continues to show that limited feeding is more efficient and produces better pork, the two men said. They noted that the automatic feeder also is well suited for use in research, where feed consumption must be controlled accurately.

Feeder Pig Demand Up in North Carolina

LOUISBURG, N.C. — Hog buyers have learned it's cheaper to buy feeder pigs in this area and ship them home than to ship in corn for hog feed.

So states Bob Shillinglaw and L. C. Hasty, extension agents in Nash County, where feeder pigs are bringing $3-$4 more per head than on the regular market.

The Nash County program, sponsored by the Lancaster Stockyards at Rocky Mount, started about a year ago. There are 75 farmers in the county participating in the quality feeder pig project, with one herd having 100 brood sows, while others range from 25-50 head.

C.M. & E. Reelects Board of Directors

DENVER — All directors of Colorado Milling & Elevator Co. were reelected at the recent annual meeting of stockholders held in Denver.

Reelected were John Evans, George M. Hopfenbeck, Mason A. Lewis and Robert M. Pease, all of Denver; Alonzo Petteys, Brush, Colo.; Paul H. Davis and Herbert I. Markham, Chicago, and Joseph H. King, New York.

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"Our feed SALES

HAVE INCREASED APPROXIMATELY 40%"...

says Dale Anderson manager of Peterson Co-Op Elevator Co. Peterson, Iowa

Dale Anderson, above, manager of Peterson Co-Operative Elevator Company, provides complete facilities for his customers. The entire Elevator is a modern, up-to-date addition to Peterson, Iowa.

With 75 HP on the mill and 30 HP on the fan, full capacity operation of the Hammermill is normal routine. Handy, time-saving, quick-change screen controls are located on the main floor.

Minor feed additives are mixed and blended in a matter of minutes in the 2 ton Strong-Scott Triple Action Mixer.

"In the 7 months we've had our Strong-Scott Hammermill and Triple Action Mixer, our sales have equalled what they were the entire 12 preceding months.

"We grind all small grains," added Dale, "and have no trouble at all in grinding a two ton load in 10 minutes." Mixing, grinding, and conveying is a fast, automatically controlled operation at Peterson, Iowa.

"I sure like those specially hardened, sectionalized screens," said Dale. "Ours still don't show any wear whatsoever." Quick-change screens of various sizes in the Strong-Scott Hammermill offer ideal selection for custom grinding.

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SELLIN' SAM — By Jim Zilverberg

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Texas Egg Council Organized to Urge More Egg Eating

ABILENE, TEXAS—The dwindling consumption of eggs has caused Texas producers to form a new association called the Texas Egg Council, with the purpose of getting people to eat more eggs.

Jim Dobbyn, vice president of the local Power Feed Mill and a council director, says the association plans to spend $50,000 on a promotional campaign. He hopes that all segments of the industry, including egg producers, hatcherymen, feed manufacturers, dealers and others will give their support to the campaign.

Membership fees for producers will be 2¢ per 30-doz. case of eggs, while feed dealers will deduct 15¢ per ton of poultry feed sold. Hatcherymen will contribute 80¢ for each 1,000 sexed pullets and 40¢ for each thousand straight-run chicks they sell. Egg handlers will pay ½¢ per case of eggs handled, while allied industries may join by paying a membership fee of $10 per year.

Mr. Dobbyn says this is the first time the egg people have joined in an all-out effort toward promotion of their product. The slogan of the campaign will be: "Eggs are good, any meal." Promotional work and publicity will be handled by a Dallas marketing agency.

Michigan Co-op's Sales, Earnings Rise

EAST LANSING, MICH. — Sales volume and net earnings both increased from 1958, Maynard Brownlee, general manager of Farm Bureau Services, Inc., reported at the firm's annual meeting.

Mr. Brownlee said that sales of farm supplies for the year ending Aug. 31 totaled $28.4 million. He noted that sales volume had increased 13% over 1958. Net earnings increased 14% over 1958, he noted, for a total of $513,000.

In his report on the year's operations, Mr. Brownlee said that the organization established an egg marketing division in 1959 with headquarters and plant at Jenison in Ottawa County.

The service manager said the new plant is cooperating with producers to market fresh fancy-quality eggs. This is the highest grade established by the U.S. Department of Agriculture.

The egg marketing program is a completely integrated operation.

Chase Promotion

NEW YORK—Charles S. Wicks has been named manager of the Chase Bag Co. manufacturing plant in New Orleans, it was announced recently by F. H. Ludington, Jr., vice president and treasurer. He succeeds D. H. Denholm, who has resigned to enter business in Alabama.

Mr. Wicks has been chief industrial engineer for Chase, heading the firm's industrial engineering department in St. Louis with which he has been associated since 1953. He joined the Chase Bag Co. in 1930 and also has been connected with its branches in Cleveland and Goshen, Ind.

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VITADINE (50 lbs.) XX

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Transportation Talks To Highlight Illinois Ag Industries Forum

URBANA, ILL. — Transportation problems will highlight grain marketing sessions at the University of Illinois Agricultural Industries Forum Feb. 2-3, according to T. A. Hieronymus, professor of agricultural economics and grain program chairman.

On Feb. 2, John C. Winter, agricultural marketing specialist with the U.S. Department of Agriculture, will give the general history and theory of rail rates. J. S. Chartrand, Chicago Board of Trade, will report on the postwar rate changes affecting Illinois grain.

H. N. Johnson, general traffic manager of Ralston Purina Co., St. Louis, will speak on "Transportation Problems of Plant and Facilities Location."

On Wednesday morning, N. D. Belnap, Chicago attorney, will discuss "Coordinating Rail, Truck and Water Grain Rates."

Grain industry representatives also will find topics of special interest on the general forum sessions.

Mr. Hieronymus emphasizes that the grain marketing sessions were planned especially for all those interested in the grain business, especially at the terminal market level. Grain industry representatives assisted in planning the program.

Complete program and reservation forms can be obtained from the Department of Agricultural Economics, University of Illinois, 305 Mumford Hall, Urbana.

Practice to Cut Egg Marketing Cost Noted

WASHINGTON—Candling and cartoning of eggs at the country assembly point, rather than at a distant consuming market, can save as much as 6¢ doz. in marketing costs, according to a research report issued by the U.S. Department of Agriculture.

The change from traditional methods of marketing would not be simple, however, researchers for USDA's Agricultural Marketing Service pointed out. It would involve development of a high-quality egg program in which producers provide assemblers with eggs that run near 90% grade A or better the year around. Also, the eggs must be moved directly from the assembly plant to established markets in metropolitan areas.

Some assemblers in the Midwest already have demonstrated, however, that both these practices can be developed satisfactorily, the study showed.

The improved practices would supplant the method of marketing in which eggs are candled at the country assembly point, packed in 30-dozen cases for shipment to market and then candled again and cartoned at the receiving point. The savings come mostly from elimination of one candling, reductions in costs of overhead and replacement of low-grade eggs at the receiving point and, in many cases, elimination of the expense of handling at wholesale.

A free copy of the report, "Candling and Cartoning Eggs at Country Assembly Points," marketing research report No. 366, may be obtained from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

Mill Treasurer Named

SAN FRANCISCO — Robert L. Soper has been named treasurer of California Pellet Mill Co., according to Edgar N. Meakin, president.

Mr. Soper joined the firm in 1950 and has been engaged in its financial activities since that time. Prior to that he was associated with Black & Decker Manufacturing Co., Baltimore, Md. He is a graduate of Michigan University and Harvard School of Business Administration.

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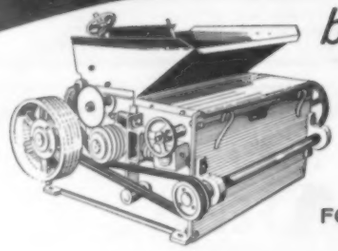

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Convention Calendar

Jan. 14—New Jersey Poultry Disease Institute; Rutgers University, New Brunswick, N.J.; R. L. Squibb, chairman, Poultry Science Department.

Jan. 16—Florida State Poultry Producers Assn.; Angebilt Hotel, Orlando, Fla.

Jan. 17-19—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred K. Sale, 600 Board of Trade Building, Indianapolis 4, Ind.

Jan. 17-19—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 22-23 — New Mexico Grain & Feed Dealers Assn. Winter Meeting; Cole Hotel, Albuquerque; sec., Parley Jensen, P.O. Box 616, Albuquerque.

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 26—Nevada Feed Conference; Education Building Auditorium, University of Nevada, Reno.

Feb. 2-3 — Agricultural Industries Forum; University of Illinois, College of Agriculture, Urbana; Department of Agricultural Economics, 805 Mumford Hall.

Feb. 2-3 — Hoosier Turkey Trot; Spring Mill State Park., Mitchell, Ind.; Indiana State Poultry Assn.; Inc., Department of Agricultural Extension. Purdue University, Lafayette, Ind.

Feb. 3-4—Illinois Feed and Nutrition Conference; University of Illinois, Urbana; K. E. Harshbarger, Dairy Science Dept.

Feb. 3-5 — American Dehydrators Assn.; Broadmoor Hotel, Colorado Springs; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 4-5—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.

Feb. 4-5—New Hampshire Poultry Health Conference; University of New Hampshire, Durham; Richard Warren, Poultry Department.

Feb. 8-9—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 8-9—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 8-11—Illinois Cattle Feeder Days; University of Illinois, Dixon Springs Experiment Station, Robbs.

Feb. 10-11—Pacific Northwest Feed Mill Production School; Chinook Hotel, Yakima, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 11—Boston Grain and Flour Exchange Annual Banquet; Sheraton-Plaza Hotel, Boston; chm., Paul Sutliff, 177 Milk St., Boston, Mass.

Feb. 12 — Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; annual convention; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

Feb. 22-25—Mississippi Swine Short Course; Mississippi State University, State College; Dean and Director, Division of Agriculture.

June 12-14—Eastern Federation of Feed Merchants, Inc.; Whiteface Inn, Lake Placid, N.Y.; exec. director, Austin W. Carpenter, Sherburne, N.Y.

Feb. 21-23 — Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington, Ohio.

Feb. 23-24—Virginia Feed & Nutrition Conference; Hotel Roanoke. Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 3—Illinois Swine Day; Uninois, Urbana; K. E. Harshbarger, Dairy Science Dept.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach,

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JANUARY

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Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 9—Mutual Millers & Feed Dealers Assn.; Statler-Hilton Hotel, Buffalo, N.Y.; sec., Mrs. Donald E. Mattison, Box 8, Cattaraugus, N.Y.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

March 17-18 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

March 23-24—National Broiler Industry Conference; Dinkler-Plaza Hotel, Atlanta, Ga.; vice pres., Frank Frazier, P.O. Box 368, Richmond, Va.

March 29—New Jersey Poultry Nutrition Institute; Rutgers University, New Brunswick, N.J.; R. L. Squibb, chairman, Poultry Science Department.

March 31-April 2—Pacific Dairy & Poultry Assn. Exposition and Convention; Stardust Hotel, Las Vegas, Nev.; association office, 1304 E. 7th St., Los Angeles 21, Cal.

April 1-2 — Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 6—Purdue Egg Day; Purdue University, Lafayette, Ind.; David D. Jackson, Extension Poultryman.

April 11-13 — Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Geil, 8 S. Michigan Ave., Chicago 13, Ill.

April 21-23—California Hay, Grain & Feed Dealers Assn.; Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 9-11 — American Feed Manufacturers Assn.; Conrad Hilton Hotel,

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does TWICE as much WORK for YOU!

- Delivers 500 lbs. of full formula feed per hour
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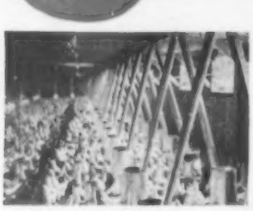

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Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 9-11 — Association of American Feed Control Officials; Sheraton-Blackstone Hotel, Chicago; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

June 13-15 — American Association of Feed Microscopists; Hilton Hotel, San Antonio, Texas; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

June 14-15 — Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

June 14-17—NEPPCO Egg Quality School; Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

June 19-21—Indiana Grain & Feed Dealers Assn.; Mid-Summer Convention; French Lick-Sheraton Hotel, French Lick; sec. Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

July 23-26 — Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

Sept. 1-6—International Congress on Nutrition; Sheraton-Park Hotel, Washington, D.C.; sponsored by International Union of Nutritional Sciences; sec., Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D.C.

Sept. 14-16—National Feed Ingredients Assn.; Liggetts Holiday Inn, Burlington, Wis.; sec., Paul W. Bonewitz, 212 Equitable Bldg., Des Moines, Iowa.

Sept. 21-23 — Feed Production School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc.; pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Sept. 22-23 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

Oct. 5-7—Texas Nutrition Conference, Texas A&M College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 11-12—Virginia State Poultry Federation convention and trade show; Hotel Roanoke, Roanoke, Virginia; sec., J. Paul Williams, 615 East Franklin Street, Richmond 19.

Oct. 12-13 — Association of American Feed Control Officials Annual Meeting; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

Nov. 2-3—Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, joint convention; Springfield Armory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

Nov. 16-17—Missouri Poultry Improvement Assn.; Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Missouri.

1961

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

New Licensing Law

CONCORD, N.H. — Feed stores which sell baby chicks only at Easter time will be required to obtain a license under a new law which became effective in this state on Jan. 1, it has been decided by the advisory board of the New Hampshire Department of Agriculture.

The new statute, enacted by the last legislature, provides that all persons and establishments keeping certain animals and birds for sale as household pets must be licensed and stand inspection of their premises by Department of Agriculture representatives.

The annual license fee will be $10, Commissioner Perley I. Fitts said.

'Lend-Lease' Program For Hogs Started by Two Georgia Partners

CLIMAX, GA.—A "lend-lease hog program designed to show that farmers can make money by growing hogs," has been started by Paul Truluck and Bobby Parker, working as partners.

The two men, farmers themselves as well as feed dealers, will attempt to improve the breeding stock on local farms and still enable small farmers to compete in the hog production economy. The breeding stock will be released to farmers beginning soon.

Basically, it was explained, the program is to produce superior sows, loan them to the farmer as long as the farmer does a topnotch management job and then market the hogs, including hauling, for the owner.

While there will be a fee involved, the partners say the premium the farmers receive through collective marketing and superior stock will more than offset such a cost.

Two recommended practices will include use of concrete floored pens for the hogs and good growing practices including a good ration.

Units of 12

The hogs will be released in units of 12 sows and a boar, but the men think a farmer needs two units to have a profitable operation.

The sows will then be kept by the farmer for about three years, or from four to six litters, and will then be turned back to Mr. Truluck and Mr. Parker, and new ones will be issued. The owners will also guarantee the sow to be a breeder.

"We have two breeds, Poland China and Hampshire, to produce a hybrid," Mr. Truluck explained. "The farmer will get a boar of one breed and gilts of another breed."

The partners will have about 60 gilts ready in January, and plan to have another batch ready in March, and every two months thereafter.

Sows will be washed and disinfected before being put in farrowing crates, where they will remain with their pigs for five weeks. The pigs are combined for two more weeks in three stalls, and at eight weeks of age will be moved to the pig parlor. A shot of iron will be given at three days of age and a full vaccination program carried out.

Mr. Truluck and Mr. Parker are graduates of the College of Agriculture at the University of Georgia, and their herdsman, Rupert Newton, is also a university graduate.

Three Buildings

The operation is housed in three buildings on the partners' farm just outside of Climax in Decatur County. The sow shed, farrowing barn and pig parlor are each joined by fenced-in runways.

A complete record is kept on each litter, and about 50% of the pigs born will never make the breeding pens, they said. Those not attaining breeding status will be sold on the regular market.

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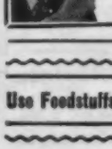

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PURINA...YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

Mississippi Research On Cattle Management And Feeding Reviewed

STATE COLLEGE, MISS.—Mississippi needs to further expand its livestock industry in building a stronger farm economy, said Dr. Clay Lyle, dean and director of the Division of Agriculture, as he welcomed some 300 cattlemen and agricultural workers to a state-wide beef cattle field day here.

"We have thousands of acres of idle land that are returning little or nothing to the owners," he said. "This land can well be used to pasture beef cattle.

"Besides using the idle land, cattlemen can further expand livestock programs through better breeding, better pastures, more feed production and better management."

Research reports on beef cattle management and feeding were highlights of the program.

"Producing a ton of beef to the acre is not in the too distant future as research with growing and preserving feeds makes great headway," reported H. H. Leveck, associate director, Agricultural Experiment Station.

M. S. Shaw, associate director, Agricultural Extension Service, predicted a billion dollar cash farm income for Mississippi within the next few years.

Pelleting Feeds

In summarizing research reports on pelleting feeds, Dr. C. E. Lindley, head of the University animal husbandry department, said, "Pelleting apparently increases rate and efficiency of gain in beef cattle. The increases seem to be greater with roughages than with grain or mixed rations.

"Pelleting may or may not increase the return from cattle. Where pelleting adds as much as $3 a ton to the cost of the feed, it may prove unprofitable.

"Apparently the greatest advantage in feeding pelleted feeds comes from using pelleted roughages; so pelleting has its greatest value in growing rations."

Cottonseed

Dr. B. G. Diggs said, "Cottonseed seems to be a satisfactory source of protein and energy for beef cattle; however, animals fed too large amounts of cottonseed may scour badly on account of its high oil content.

"In fattening rations it is recommended that cottonseed should not be fed in excess of 5 lb. per 1,000 lb. of body weight," he said.

Dr. Diggs went on to offer these conclusions:

- Cottonseed is a satisfactory replacement for cottonseed meal, as a supplement, for wintering weaned calves and bred beef cows.
- Cottonseed incorporated into a fattening ration rather high in roughage, he said, is worth 60-80% as much as cottonseed meal.
- Cottonseed incorporated into a high concentrate ration seems to be fully equal to cottonseed meal.
- One pound of cottonseed in a fattening ration seems to be worth 1-1.3 lb. milo.

On feeding steers on pasture, B. G. Ruffin said, "In most of the trials reviewed where dry lot feeding was compared to summer pasture fattening, it was found that the total feed cost for finishing cattle was less for those full fed on pasture.

"The carcass grades were approximately equal and in some trials the daily gains were greater for the steers full fed on pasture," he said. "Summer pasture with plenty of lush forage can be expected to produce good results when fattening steers."

Stilbestrol

W. R. Moorehead said, "The use of stilbestrol to increase gain of fattening steers is a sound and proven practice. One should always remember that stilbestrol produces the greatest increase in rate of gain in cattle that are receiving a high energy ration. When properly administered stilbestrol will increase profits but it cannot be used as a substitute for good management practices."

On the use of stilbestrol for nursing calves, L. W. Williams said, "At present stilbestrol should be used at one's own risk in animals which are to be sold off grass in the spring as replacement cattle."

He said, "Stilbestrol implants at the rate of 24 mg. per head are recommended for grazing cattle which are to be sold for slaughter. For cattle that are to be grain fed following a grazing period, it is recommended to use 24 mg. stilbestrol implants at the beginning of the feeding period only."

Regarding stilbestrol for beef heifers, Bryan Baker, Jr., said, "While there is evidence that stilbestrol will not cause any reproductive disturbances it would be my recommendation that under no condition should this material be used indiscriminately for replacement heifers.

"At the present time there is not enough known about this material and its effects on sexual development to warrant making any recommendation concerning its use for any animals except those being fed for slaughter," he said.

On carcass quality, W. R. Backus said, "A recommendation for the use of stilbestrol in cattle feeding would be that it may be fed or implanted at recommended levels with little if any lowering of carcass grades and yields. If carcass grades are lowered somewhat this should be more than offset by the increased feedlot gain that can be expected."

Protein Levels

W. M. Swoope said, "Calves that are weaned in the fall and carried over as stockers or replacements must receive adequate protein supplement when fed a poor quality roughage."

He cited experiments which showed that "when a poor quality roughage was fed with no protein supplement the cattle lost considerable weight during the wintering period.

"The trials conducted during the winters of 1957-58 and 1958-59 indicated that when sorghum silage was fed as the sole source of roughage it should be supplemented with 2 lb. cottonseed meal in order to produce the most satisfactory gain," he said.

Mr. Swoope said, "When cattle are foraging for their own roughage in the form of dead grass or crop residue, it would usually be desirable to feed a protein supplement. The experiment conducted in 1957-58 showed that calves receiving no cottonseed meal consumed only 13.9 lb. silage per day. On the other hand, calves that received 1 lb. cottonseed meal had a daily consumption of 23.9 lb. silage. This increase in consumption of roughage should result in young cattle wintering much better."

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Parlors Suffer in South; Mixed Hog Feed Sales Down

By DAVID MARTIN
Special Correspondent

LITTLE ROCK, ARK.—"Confinement feeding of hogs is at a standstill."

That's the way a Little Rock feed man who asked to remain unidentified described the status of pig parlor operations in the South.

"A few farmers who have feed are buying supplement and are marketing their grain through hogs," he said, "and some farmers in Tennessee and Kentucky are holding on in the hope that the market will rebound."

"For the most part," he pointed out, "the parlors are empty."

The reason is simple: When hogs dropped to new three-year lows, the profits became losses.

The net result in many areas of the South: Feed men are selling much less mixed feeds to hog producers.

Outlook Unfavorable

And the outlook, in the opinion of a number of hog operators, feed dealers and agricultural experts, is for more of the same for at least a few more months.

"Hogs are going to have to go up pretty fast if the parlor operators jump back in the business," one feed company field representative commented.

In fact, there is talk in agricultural circles that some of the "shine" may be off parlors.

A farmer who operates nine parlors near Fort Smith, Ark., says he believes parlor feeding was "too far from the basics in hog production."

He says he may not return to the parlors when he begins producing pork again.

"I'm convinced that parlors do not offer the best system for pork production," he concluded.

Some industry officials look for wide fluctuations in the price of hogs in coming months.

A Little Rock feeder commented: "Farmers can get in and get out too easily. In recent years, hog men have watched the production cycles closely and have learned when to expect the peaks and valleys.

"Large numbers of growers have accepted the idea that they should get into production when others are getting out, and this has tended to wipe out the declines in hog numbers."

The recent price drops have settled one thing: The South isn't going to become the largest pork-producing area in the nation, as many officials predicted a few months ago.

The predictions were based on statistics showing that hundreds of parlors were constructed in the South.

Cost Figures

Generally, studies show that it costs about $14.50 to produce 100 lb. of gain in parlors. This includes about $12 for feed and $2.50 for labor, interest on investment, medicines and other incidentals.

When hogs were selling about $20 cwt., profits were good. But when prices dropped to $12 and $13, losses were high.

The conclusion: Prices will have to rise to $15 or $16 before there is any significant return to parlor feeding.

And this doesn't appear likely for at least six months or possibly longer. Although recent U.S. Department of Agriculture reports forecast an 11% drop in spring pig production, the drop probably won't be enough to increase prices to profitable parlor levels.

But some feed men feel it will increase prices enough to stimulate the purchase of larger amounts of mixed feeds and concentrates for swine.

Meanwhile, many pig parlors remain empty.

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Poultry Festival Set

LITTLE ROCK, ARK.—The 1960 State Poultry Festival will be held here next July, according to Jess Merkle, El Dorado, president, Arkansas Poultry Federation. The federation and the Little Rock Chamber of Commerce will co-sponsor the event.

Jerry E. Hinshaw, Springdale, general chairman of the federation's festival committee, explained that Little Rock was chosen because of its central location, available facilities and financial support provided by the Little Rock Chamber of Commerce.

FEED MEN KILLED

LAMESA, TEXAS—J. R. McNeil, owner of McNeil Field Seed Co. and mayor of Spur, Texas, was killed in an airplane crash near here while returning from a seedsman's convention in Phoenix. Herbert Heimer, an employee, also was killed.

FEEDSTUFFS reprints

The following reprints of articles which have appeared in Feedstuffs may be obtained on order from Feedstuffs' Reader Service Department:

2. **Custom Feed Milling**—a series of five articles—by Al P. Nelson, Feedstuffs special writer 50c
3. **Mobile Feed Milling**—a series of five articles—by Al P. Nelson 50c
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51. **Broiler Industry Management**—Prof. Ewell P. Roy, Louisiana State University 20c
52. **Analysis and Feeding Value Tables for Beef Cattle and Sheep**—6-page article, by Dr. S. H. Morrison, Nutrition Consultant, 25c single copy; 3-5 copies 15c ea.; 10 or more, 10c each.
53. **Grain Bank Operation**—Dr. W. S. Farris, Purdue University 20c
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Illinois Nutrition Meeting Program Details Reported

URBANA, ILL. — Program details for the 1960 Illinois Nutrition Conference to be held on the afternoon of Feb. 3 and morning of Feb. 4 in Hopkins House on the University of Illinois campus have been announced by the chairman, K. E. Harshbarger of the College of Agriculture.

The event, held annually, will be attended by feed dealers, nutritionists and agricultural leaders.

After registration at noon Feb. 3 and a welcome by Louis B. Howard, dean of the college of agriculture, the following researchers will speak:

Dr. H. H. Draper will discuss "The Selenium-Vitamin E Enigma"; C. L. David will outline "The Role of Fatty Acids in Ruminant Nutrition," and Dr. F. A. Kummerow will speak on "Nutrition and Heart Disease."

A panel discussion, consisting of members of Illinois research—Dr. D. E. Becker, Dr. D. J. Bray, Dr. A. H. Jensen and Dr. H. M. Scott—will discuss "Dietary Requirements—Supplementation of Practical Rations."

Dr. R. O. Nesheim of the Quaker Oats Co. will conclude the Tuesday session with a talk on "Amino Acids in Feed Formulation—Present and Future."

Dr. O. Burr Ross, head of the department of animal science, will preside at this session.

A banquet is planned for 6:30 p.m. in Hopkins Dining Room, followed by entertainment and a speech, "A Trip Through Russia," presented by A. V. Nalbandov.

Dr. K. E. Gardner, department of dairy science, will act as toastmaster for this event.

Wednesday morning, "Radioactive Fallout and Our Food Supply" by Dr. B. L. Larson, will be the first address, followed by "Another Look at Vitamin A for Beef Cattle" to be considered by Dr. A. L. Neumann.

Dr. N. L. VanDemark will next speak on "Energy Relationship to Reproductive Performance in Dairy Cattle." Dr. Becker will outline "Energy Evaluation of Feeds for Swine," and the closing discussion will be given by Dr. A. Zeissig, Merck, Sharp & Dohme.

Dr. G. W. Salisbury, head of the department of dairy science, will chair the morning session.

Wednesday afternoon there will be optional tours of research facilities of the animal science laboratory conducted by Dr. Joseph Kastelic, head of the division of animal nutrition.

Registration for the two-day conference may be made by writing: K. E. Harshbarger, Department of Dairy Science, University of Illinois, Urbana. The registration fee (including the abstract) is $6. Rooms, meals and parking will be available at Hopkins House (Third Street and Gregory Drive, Champaign).

Single rooms, per person, may be had for $4; double or triple, per person, $2.75. Meal tickets will be available at the registration desk and will cost: breakfast 75¢, lunch $1.25 and banquet $2.50.

Reservations should be in before Jan. 15.

Melvin C. Yeich

REPRESENTATIVE — Melvin C. Yeich has been named a feed products sales representative for the chemical division of Merck & Co., Inc., Rahway, N.J. (Feedstuffs, Dec. 26, page 48). He will serve North and South Carolina, according to James E. McCabe, director of marketing for Merck agricultural products.

Executive in Broiler, Feed Firms Dies

SALISBURY, MD. — Clinton E. Quillin, a leader in the broiler and feed industries, died here recently after suffering a cerebral hemorrhage. Mr. Quillin would have been 71 Jan. 26.

Apparently in good health, Mr. Quillin had finished lunch when he was stricken. He was taken to the hospital by ambulance but did not regain consciousness.

In addition to his poultry interests, Mr. Quillin was president of the Salisbury Milling Co. and a vice president of the Berlin (Md.) Milling Co.

Mr. Quillin was among the first to realize the potential for growing broilers on the Eastern Shore.

He helped develop the business into the present multi-million dollar enterprise.

POULTRY FIRM INCORPORATED

FORT COLLINS, COLO. — Colorado Kimberchiks, Inc., has filed articles of incorporation to produce, buy, sell and deal in baby chicks, hatching eggs and commercial eggs. Listed as incorporators-directors were Harry O. Hard, R. Morgan Dyreng and Ray P. Dyreng.

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MILLWRIGHT INTERESTED IN A PERManent position in Baltimore, Maryland area to rebuild and recondition flour and feed mill machinery. Send complete resume. E. H. Beer & Co., Inc., 2100 S. Newkirk, Baltimore 24, Md.

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National compounder of feed additives with plant in the Southwest offers excellent opportunity for reputable man who can sell. Salary, commission, expenses and fringe benefits. Must be acquainted with feed mixers in the Southwest. For personal interview send complete details. Address Ad No. 5525, Feedstuffs, Minneapolis 40, Minn.

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The Feed Products Department of John Labatt, Ltd., has an opening for a salesman. He will be primarily concerned with selling feed additives to feed manufacturers in Ontario and Quebec.

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Apply, giving details of personal background, education and experience to:

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JOHN LABATT, LTD.
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NATIONAL SUPPLIER TO FEED MANUfacturers offers excellent opportunity to aggressive sales representative. Salary, commission, expenses, liberal benefits, travel. Degree, knowledge of nutrition and feed formulation necessary. Location, southeastern states. Send complete resume to The Borden Co., Feed Supplements Department, 350 Madison Ave., New York 17, N. Y.

LARGE NATIONAL GRAIN COMPANY needs man with experience in grain elevator or milling operations to assist in cost reduction studies. Knowledge and experience in time and motion study procedures essential. Please furnish complete data in first letter—personal information, education, experience, references and salary expected. Address Ad No. 5478, Feedstuffs, Minneapolis 40, Minn.

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DAVIS COMMERCIAL GRAIN ROLLER, 12"x30" rolls. Slightly used. Good as new. Morton & Sparks, Kingman, Kansas.

12½-TON TOLEDO DIAL SUSPENSION hopper scale, like new, 32 inch dial, Model 2500. O. W. Meyer, Napoleon, Ohio.

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

FOR SALE — SIZE 252 JAMES SINGLE stage incubators. Condition like new. Also Klein and Million Dollar Hen chick batteries. Hovel's Hatchery, Zumbrota, Minn.

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1957 DAFFIN FEED MOBILE, Chevrolet truck 36,000 miles, 2,600 hours on diesel, like new condition. Will give new machine guarantee on unit. 1956 Daffin feed mobile, Chevrolet truck, 8,000 miles on new motor, 4,200 hours on Diesel, excellent operating condition. Will sell either unit. Reason for selling—two mills, one competent operator. Address Ad No. 5529, Feedstuffs, Minneapolis 40, Minn.

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Excellent immediate opportunity in Oakland, California. Branch of national feed and cereal manufacturer. Minimum 4 years' wholesale credit experience. Age 28-45. Please write D. G. Pearson, P.O. Box 4022, Bay Shore Station, Oakland 23, California, stating education, experience and salary requirements.

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FOR SALE—12-TON BULK FEED BODY. Good condition. Evergreen Mills, Ada, Okla.

SALE—UNUSED STURTEVANT NO. 9 ROtary blender; 150 cu. ft. Sprout-Waldron; 335 cu. ft. horizontal ribbon mixer, unused; Type 304 stainless steel dry material handling installation, including: 1,800 cu. ft. weigh hoppers, bucket elevators, shaker and screw conveyors, etc. Ferry, 1403 N. 6th St., Philadelphia 23, Pa.

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100 H.P. ACE SPROUT-WALDRON PELlet mill, complete with motor, coolers, pneu-vac air system; 60 H.P. Sprout-Waldron pellet mill and cooler; 50 H.P. heavy duty California pellet mill; 5-ton S. Howes Eureka horizontal mixer, with silent chain drive and 40 H.P. motor. Call or write J. E. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.; Phone 6-2197.

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ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

WANTED—TWO OR THREE TON HORIzontal used mixer. Must be in good shape. Round Lake Farmers Co-op., Round Lake, Minn.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

WANTED — COMPLETE, GOOD USED feed mill. Hammermill, 1½ to 3 ton mixer and pellet mill. Write Arthur Clary, Clary Poultry & Egg, Box 1146, Lubbock, Texas.

WANTED TRACK MOBILE CAR MOVER, used, good condition. Give full particulars. Call or write Earl A. Hogan Co., 823 Board of Trade Bldg., Kansas City, Missouri.

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ELEVATOR AND FEED MILL LIQUIDAtions. Let McLaughlin, Ward & Co. handle sales of equipment in unwanted plants. None too large or too small. We will sell for you or buy outright complete plants anywhere in U.S.A. We are large handlers of grain, feed and seed equipment. McLaughlin, Ward & Co., phone State 9-8141; ask for A. L. Ward, Jackson, Mich.

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FOR SALE—TO SETTLE ESTATE, FEED plant and produce business in the heart of the Red River Valley. Incubators and other equipment can be purchased separately. Call or write George E. Serlie, Hillsboro, N. D.

FEED MILL - FARM SUPPLIES, SAME owner 25 years, complete equipment, truck; nine-room house; 1958 sales $35,000, Pennsylvania town, owner retiring; with property. Address Ad No. 5528, Feedstuffs, Minneapolis 40, Minn.

FOR SALE
FEED MILL, MEDIUM SIZE

Well established custom feed manufacturing business in Northeastern Iowa, in an area surrounded by a concentration of hog, poultry and dairy producers.
Excellent facilities, equipment and trucks; concrete reinforced mill structure (approximately 40,000 square feet). About 80% of incoming materials handled in bulk; large capacity storage bins and tanks for liquids. Will consider lease, with option to purchase. For additional data, please write . . .

Ad No. 5505
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Minneapolis 40, Minn.

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PUBLIC AUCTION JAN. 16, 1960, 1 P.M. Wikel Turkey Farms & Processing Plant. 445 acres, 3 sets improvements. Processes 400 per hour. Good grain area, brooders, bulk feed storage, cold storage, processing facilities. 45 miles west Cleveland, 8 miles east of Norwalk, Ohio, 2 miles north, 1¼ east. Gorrell Bros. Auctioneers, Liquidators, Ricksville, Ohio; Phones 2-4061, 2-4005; R. L. Gorrell, Broker.

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EXPERIENCED FEED MILL MAN AND feed salesman. Would like to sell reliable line of feeds, flour meal and grits. I would prefer central and western North Carolina. Would consider other or more territory. References exchanged. P. O. Box 541, Zebulon, N. C.

EXPERIENCED MANAGER—AVAILABLE Jan. 15. Twenty years' experience, seven in Mexico, capable managing elevator, complete feed milling operation, sales purchasing, regardless of size. Interested only in aggressive company, Southwest preferred. Lewis Meekins, Box 666, Trinity, Texas; Tel. 98.

EXPERIENCED FEED INGREDIENT, professional salesman, fine appearance, top man in every respect, earnings $14,000 in 1959. Nutritional and formulation background. Nationwide experience and contact with feed mill buyers of ingredients. Successful last several years with national firm. Training agricultural chemicals, antibiotics, chemobiotics, drugs, pharmaceutics and vaccine. Interested in small or large firm with challenging opportunity. Will relocate. Salary not the object. Do not let past earnings drive you off. Feel free to write and I assure you all replies will be carefully handled. Address Ad No. 5515, Feedstuffs, Minneapolis 40, Minn.

Dun & Bradstreet Requests Statements

NEW YORK—This month Dun & Bradstreet, Inc., through its network of offices, is mailing its annual request for financial statements to virtually all the businesses in the U.S. and Canada who seek or grant commercial credit. These requests will go to the 3 million manufacturers, wholesalers and retailers in more than 50,000 cities and towns listed in the Dun & Bradstreet Reference Book.

In his annual message to businessmen, J. Wilson Newman, president, Dun & Bradstreet, Inc., states, "1960 will be a year for important decisions in your business, in your industry and in your country. The economic energy and health of our country are no better or no worse than the composite of individual business enterprises." Mr. Newman adds, "The day to day stresses and irritations of our business life should not cause us to lose sight of the relative significance of each enterprise to the American economy, or the significance of the economic health of the American economy to the welfare of the world."

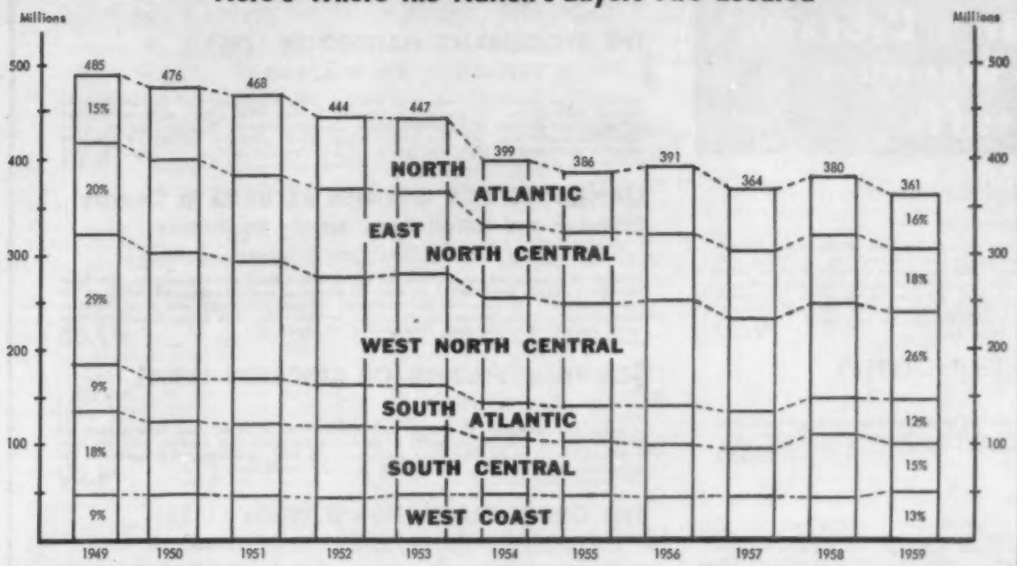
Mr. Newman continues, "Now, when you are reflecting on the results of last year's operations, take a moment to look ahead. Appraise how changing conditions may affect your business—appraise the effectiveness of your efforts and those of your associates and employees. When a good job has been done," Mr. Newman concludes, "take appropriate satisfaction yourself but compliment all who contributed to it. Resolve to tackle unsolved management problems with a bit more determination in 1960."

Also included in Mr. Newman's letter is the offer of a new 40-page small business handbook, "How to Build Profits by Controlling Costs." This booklet is a practical guide which shows how to control the costs of doing business through the understanding and analysis of business figures. Single copies of the booklet are available at no charge from the public relations and advertising department, Dun & Bradstreet, Inc., 99 Church St., New York 8.

Kansas City Meeting

KANSAS CITY—The Kansas City Feed Club will meet Jan. 12 at the Golden Ox in the final meeting of the club's year. New officers will be elected. The steak dinner at 7 p.m. will be preceded by a social hour starting at 6 p.m.

Here's Where the Nation's Layers Are Located



POTENTIAL LAYING FLOCK DOWN—The potential laying flock (layer plus pullets not yet of laying age) on Nov. 1 declined 26% from 485 million birds in 1949 to 361 million in 1959, according to this chart from NEPPCO News, published by the Northeast Poultry Producers Council. In actual numbers, the West Coast has held its own—45.6 million in 1949, 46.4 million in 1959—though its percentage of the total flock has increased from 9% to 13%. The south Atlantic states, in spite of recent growth from a low of 38 million in 1954 and 1955 to 43.5 million in 1959, still is lower than the 45.5 million it had in 1949. The north Atlantic states declined from 74.2 million in 1949 to 57.5 million in 1959, a percentage decline slightly less than the nation as a whole. The heaviest shrinkage in the flock was in the central states.

Group of Eastern Ontario Farmers Planning Cow Pool

TORONTO, ONTARIO—An Eastern Ontario group of farmers is planning to set up a cow pool soon, according to the Ontario Department of Agriculture. Cows from many herds will be housed, fed and milked in a central location on contract. The operator of the pool will market the milk.

"None of the U.S. cow pools have operated long enough for anyone to have much data on them," says Dr. Dave Arnott, Ontario Agricultural College dairy scientist, "but the Fashion Farm cow pool in Iowa seems most adapted to Ontario. Cows are put in a pool under contract and the pool performs all the services, provides the feed and sells the milk."

"The cow owner gives up cow management yet he still retains cow ownership, and he may care for his dry cows and raise his calves. He is paid for his milk on the basis of a monthly DHIA weight and test."

Dr. Arnott sees cow pools answering four big problems:

(1) Farmers without bulk tanks or the money to buy them will be able to "use" the pool's bulk handling systems.

(2) Herds that are too small for efficient production will be able to take advantage of the large-scale efficiency without the responsibility of capital expansion, extra labor or new management techniques.

(3) Dairymen who are tired of 365 days without a holiday will no longer have the pressing twice-a-day milking chores.

(4) Dairy processors see the cow pool as one means of cutting hauling costs—they will only have one stop for milk. Some processors believe it also gives them a better control of both quantity and quality of milk.

Some Drawbacks

The Ontario Department of Agriculture researcher claims there are some drawbacks to the cow pool system. Dairymen who put their cows in the pool will have to pay cash for items like labor, feeding and housing. In some established pools in the U.S., the charge to cow owners for the use of buildings and equipment is $40 per cow per year.

"In the Iowa pool this is payable in advance. The labor cost, veterinary fees, management fees and miscellaneous costs like bedding, sanitizers and supplies are all deducted each month from the milk check," says Dr. Arnott. "This could make quite a hole in the milk check," he adds. "And remember, many farmers won't be able to use their family labor. Leisure time doesn't contribute to extra income."

Dr. Arnott also states that the production of some cows in the pools has slipped. Cows that used to milk 12,000 have slipped to 9,000. Lack of attention might be one cause—Michigan found that mastitis increased in pooled herds. Good veterinary service was also difficult with large cow numbers.

Dr. Arnott believes the proposed cow pool in eastern Ontario stands a good chance of success but passes on a Michigan judgment: "A well-adjusted dairy farm with 60 to 80 cows produces milk about as efficiently as the estimates that can be made up for the large cow pools."

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*U.S. Patents 2,331,808 & 2,367,302

Wirthmore Research Man Is Promoted

WALTHAM, MASS.—Dr. Kendall L. Dolge, a member of the research department of Wirthmore Feeds, Inc., Waltham, has recently been promoted to the technical service division of Corn Products Co., New York, Wirthmore's parent organization.

Dr. K. L. Dolge

Dr. Dolge has been a member of Wirthmore's research department for the past four years. He spent the previous five years on the staff at the University of Connecticut. He received his bachelor's and master's degrees at the University of Connecticut, and his Ph. D. at Cornell University, where he majored in animal nutrition and minored in biochemistry and physiology.

Dr. Dolge will be responsible for technical service involving Corn Products ingredients for the feed industry. In addition to contacting feed manufacturers and universities in this capacity, he will assist in the development of new feed products.

Swine Testing Station

CORVALLIS, ORE.—Twelve Oregon swine breeders have placed a total of 64 purebred pigs on test at the new Oregon swine testing station near Hermiston.

Testing for feed efficiency, growth rate and meatiness of carcass will be finished about April 1, reports Dr. David England, Oregon State College animal husbandman, who is in charge of the industry-sponsored station.

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BoDEE (Mineral) STABLE VITAMINS D
Vita D that will not decompose when combined with minerals.

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Vitamin D-2 or D-3 in dry, oil or water dispersible forms.

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Stable dry vitamin A products.

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HYDROPOID
Dry, free-flowing partially hydrogenated animal fat.

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It covers the standard, constantly-needed facts on feeding farm animals and also the newly discovered facts about how certain acids, minerals, vitamins, etc., can help in raising healthier, more productive animals. 474 pages, 77 illustrations and tables **$8.00**

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Covers breeding, feeds, feeding, economic trends, equipment, etc. Includes a report of hundreds of feeding experiments. Has a special chapter on sterility by Dr. Harry Hardenbrooks, Jr., assistant professor of veterinary medicine, University of Illinois. 441 pages **$7.50**

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A complete transcript of the 1958 Small Mill Short Course designed specifically for the Small Mill, Concentrate Mixer and Custom Miller. Covers such subjects as Receiving and Preparation, Mixing, Packing, Storing and Shipping, Typical Mill Layouts, Pelleting and Dust Collection **$5.00**

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FEEDING RATIOS

(Continued from page 4)

Holding steady at 297 on Dec. 15, the index of prices paid by farmers for commodities and services ended 1959 less than 1% higher than in December, 1958. The index was more stable in 1959 than in any year since 1940, ranging between a high of 299 in April and a low of 296 in October.

With farm product prices off only slightly, the parity ratio remained at 77, the same as a month earlier.

The mid - December production goods index held at 264 for the third consecutive month, averaging less than 1% below a year earlier.

Feed prices over the country averaged the same in December as in November. The index of prices paid by farmers for feed in December was 195, just as it was a month earlier, but lower than the 199 index of Dec. 15, 1958.

The downward trend in prices paid by farmers for feeder and replacement livestock continued for the eighth consecutive month, but the rate of decline was less than in any month since September.

Feeder cattle prices Dec. 15 averaged 70¢ cwt. lower than a month earlier. On the same date, baby chick prices averaged 4% higher than a month earlier and 14% above the record low of mid-August.

The mid-December feeder livestock index (340) was 2% below the previous month and lowest since November, 1957.

USDA reported that lower prices for meat animals, other than sheep, dropped the mid-December index of prices received by farmers for livestock 4% to 264% of its 1910-14 level. This was the lowest since March, 1957, and the lowest for the month since 1956.

Hog prices averaged $11.20 during the month ended Dec. 15—the lowest since January, 1956. Beef cattle were off 50¢ to $19.50 and calves were off 80¢ to $23.10 cwt.

During the year, the meat animal index averaged 312, which was 7% below 1958 but well above the average for any other year since 1952.

The index of prices received by farmers for poultry and eggs gained 6% from Nov. 15 to Dec. 15. Primarily responsible for this increase were sharply higher prices for chickens and turkeys. Although the Dec. 15 index of 148 was the highest since last March, it was the lowest for the month since 1940.

At 29.7¢ lb., turkey prices were up 19% from a month earlier and at the highest level in 3½ years. Broiler prices at 17.6¢ lb. were the highest in more than a year.

Egg prices were seasonally lower. At mid-December, eggs sold off the farm for an average of 30.7¢ doz., 17% below a year earlier and the lowest for the month since 1940.

The dairy product index fell 2% during month ended Dec. 15 to 274 as wholesale milk prices began the usual seasonal decline. USDA said the preliminary estimate of the average price received by farmers for wholesale milk ($4.51 cwt.) was 2% below November but 2% above a year earlier. In mid-December, prices for milkfat in cream averaged 61.8¢ lb., up 1% during the month. Prices received by farmers for milk sold directly to consumers showed no change during the month.

Chicago Feed Club Schedules Meeting

CHICAGO — The Chicago Feed Club will hold its first meeting of the year Jan. 15 at the Merchants and Manufacturers Club, Merchandise Mart. Cocktails will be served at 5:30 with dinner scheduled for 6:30 p.m. New officers for 1960 will be installed and appointments of committees announced. Local and out-of-town guests are invited.

AFMA, NEPPCO

(Continued from page 1)

agenda and other details for this first meeting.

AFMA president W. E. Glennon said: "The American feed manufacturing industry is pleased to have this opportunity to meet with northeastern representatives of the poultry industry. We are confident that such an exchange can improve understanding of the problems faced by both groups. Complex as these problems are, any effort to work toward a mutually satisfactory solution is worthy of the time and effort required by both groups."

Adding to Mr. Glennon's remarks, Ernest F. Smith, Jr., NEPPCO's president, said: "We are preparing for this first joint meeting with the firm conviction that it will produce tangible results. While we are not so naive as to expect one small committee, however important or powerful, to solve all the ills of the poultry industry, any progress toward that end would be most welcome and worthwhile. Even if the net result would simply be a better understanding by poultrymen of the feed men's viewpoint and vice versa, we would consider the venture successful."

GRAIN STORAGE

(Continued from page 1)

the government storage bill. Budgetary requirements may now be seen as a stumbling block to additional spending, particularly for USDA. It may be expected that when the warehousemen document their objections and set forth additional costs they believe they will need if the new proposals are to be adopted, USDA will back away from these changes.

In the meantime, the Symington sub-committee under the direction of Richard Schmidt, Denver attorney and general counsel, plans to start open hearings here Jan. 12. It is now expected that he will ask grain warehousemen to hold themselves in readiness for an invitation to appear before his committee although, as of this time, he has no slated priority of appearance. It is therefore presumed that after the trade has made itself available, Mr. Schmidt will bring in Commodity Credit Corp. executives.

There is a general feeling here that this sub-committee hearing, of which Sen. Stuart Symington (D., Mo.), is chairman under the direction of Mr. Schmidt, will represent a searching examination of CCC operations; but an examination which will reflect insight and judicious investigation rather than a "sensational witch hunt." That is the impression Mr. Schmidt has made on all who have had contact with him here.

Average Bulk Prices and Index of Weighted Prices*
(Dollars per ton)

	Jan. 5, 1960	Dec. 29, 1959	Change from Previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	68.50	68.15	+ .35
Cottonseed meal	65.85	65.60	+ .25
Linseed meal	77.65	77.40	+ .25
Copra cake or meal	72.25	72.25	...
Peanut meal	62.00	62.50	— .50
Index	89.3	88.9	+ .4
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	72.50	71.40	+1.10
Tankage	70.85	69.00	+1.85
Fish meal	113.50	113.50	...
Index	70.7	69.9	+ .8
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed & meal	49.80	49.80	...
Dist. dried grains	59.90	59.90	...
Brewers dried grains	48.50	49.30	— .80
Index	80.1	80.2	— .1
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	40.35	41.65	—1.30
Midds. and shorts	41.20	42.75	—1.55
Index	73.7	76.3	—2.6
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy feed	45.10	45.50	— .40
Rice bran	34.00	33.00	+1.00
Index	69.8	70.0	— .2
ALFALFA MEAL			
Prices at prin. mkts.	57.00	56.90	+ .10
Index	109.7	109.5	+ .2
MOLASSES, FEEDING			
Prices at prin. mkts.	23.05	23.05	...
Index	68.6	68.6	...
ALL FEEDSTUFFS			
Index	82.0	82.1	— .1
FEED GRAINS			
Prices at prin. mkts.:			
Corn	39.50	39.20	+ .30
Oats	49.00	49.40	— .40
Barley	43.40	43.40	...
Grain sorghums	36.90	36.80	+ .10
Index	65.1	64.8	+ .3

*Base period of index is 1947-49.
Source: Agricultural Marketing Service, USDA.

DR. CATRON

(Continued from page 1)

and his staff have made research contributions in the field of antibiotics, vitamin B_{12}, trace minerals, protein requirements and in baby pig nutrition, including studies on the development of the digestive enzyme systems in baby pigs. Dr. Catron's research led to an American Feed Manufacturers Assn. award in 1954 for outstanding research in animal nutrition.

Dr. Catron was born and reared on a general livestock farm near Kokomo, Ind. He holds a B.S. degree in agriculture from Purdue University, a master's degree in animal nutrition from the University of Illinois and a Ph.D. degree in animal nutrition from Iowa State University. Dr. Catron has also served on the staff at both Purdue and Illinois universities.

An exponent of close cooperation between universities and the feed industry, Dr. Catron spent three years in the industry, first in a liaison position between research, ration formulations, promotions and sales, and later as a nutritionist in charge of swine, poultry, turkey and cattle nutrition research, ration formulations and quality control in feed manufacturing.

Dr. Catron is well known for his editorial contributions on research and nutrition.

He has served as an advisor and consultant in foreign countries where he worked with livestock nutritionists and feed manufacturers.

Dr. Catron said in making the change from university to industry that he feels he will have an opportunity to apply the experience he has gained from research to the practical problems facing the livestock producer in a growing, highly technical animal agriculture and at the same time continue to maintain his close contacts with both industry and universities.

Walnut Grove serves livestock producers in eight Corn Belt states and has manufacturing plants at Atlantic, West Liberty, Independence and Cherokee in Iowa and at Elkhorn, Neb.

SPENCER KELLOGG

(Continued from page 4)

erations throughout the territory served by our mills.

"Lest there be some misunderstanding as to the effects of Secretary Flemming's pronouncement on use of stilbestrol on caponettes, let me point out the following: Our feed divisions do not manufacture any poultry feeds containing stilbestrol. Further only 1% of all chickens marketed in the U.S. have been treated with stilbestrol, namely, the single item of caponettes. Roasters, fryers, capons, turkeys, ducks, Cornish hens, and what-have-you are not treated with this drug. Insofar as the caponettes which have been treated are concerned, the U.S. Department of Agriculture has agreed to take them over from the raiser on a stipulated basis which will enable the latter to recover all or most of his expenses. Thus, the buying public, that is, the housewife, need have no fear whatsoever that a contaminated bird has been purchased from her local supplier.

"Outlook: There are already signs of improvement as compared with the first quarter performance. The farm situation has undergone some change, with an increase in the level of prices for eggs and broilers, both of which are important segments served by our feed divisions. In addition, a somewhat higher price for soybean meal has been reflected in better profit margins on soybean crushing. These factors, coupled with efforts of our Research Department in marketing new products, as well as the factors enumerated above, will all go toward an anticipated pickup in the near future. Also, it might be well to point out that the fourth quarter of our last fiscal year showed some decline as compared with the rate in the first three quarters. This decline continued into the first quarter of the current fiscal year, and I am hopeful that the final three quarters will be more nearly comparable with the first three quarters of last year."

TOP OF THE HOPPER

(Continued from page 2)

The former definition of a farm, for Census purposes, was a place of more than three acres which produced commodities worth at least $150, whether they were sold or not; or, if less than three acres, it had actual total sales of products worth $150.

The new definition is expected to result in a considerable drop in farm numbers as used for statistical purposes. This, coming on top of the continuing decline in numbers for economic reasons, probably will be used as ammunition by politicos who have been arguing that agricultural policies are driving people off the farm.

THE TURKEY INDUSTRY'S elder statesman, Dr. W. A. Billings, is crusading for a small turkey which he feels will be bought and consumed on more of a year-around basis. At the National Turkey Federation convention this week, he again told the story of a meeting this fall of businessmen and their wives in his present home town of St. Petersburg, Fla. Doc said he asked the assembled crowd how many had eaten turkey since the previous Thanksgiving, and not one of the several hundred present raised his hand. Asked why this was so, a number voiced the view that "they get tired of turkey"—even though they hadn't eaten any for about 11 months.

Dr. Billings used the story to illustrate his argument that turkey consumption cannot increase appreciably if people must buy relatively large birds and then "get sick of turkey" while they eat up the leftovers following the holiday feast. He contends that the industry must develop and offer a "small package that people will eat and not get sick of." By this he means a small whole turkey; he says he can't see much future in cut-up turkey parts, although there will be some market for this type of product.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand slow; supply ample; 400 D, 3,000 A 21½¢ lb.; 300 D, 3,000 A 21¢; 300 D, 2,250 A 19½¢; 300 D, 1,500 A 18¢; 75 D, 750 A 15½¢.

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

Minneapolis: Demand fair; supple ample; 10,000 A 22¢ lb.; 300 D, 2,250 A 16½¢ lb.; 300 D, 1,500 A 15½¢ lb.; 300 D, 750 A 14¢ lb.

ALFALFA MEAL

Philadelphia: Demand slow; supply fair; 17% dehydrated $68.50.

Denver: Demand fair; trend steady; supply ample; dehydrated $52, sacked meal; $50, bulk, pellets.

New Orleans: Demand fair; trend steady; supply adequate; 17% protein, 100,000 vitamin A, bulk $65@66, sacked $70@71.

Portland: Demand steady; supply ample; trend unchanged; suncured, 15% $50; dehydrated $67.40.

Omaha: Demand slow; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $52; sacked meal $57, Omaha.

Memphis: Demand fair; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $65.

Boston: Demand and supply steady; dehydrated, 17% $65; suncured, 13% $44.

St. Louis: Demand slow; trend steady; supply ample; suncured, 13% fine, sacked $45.50; dehydrated, 17%, 100,000 A pellets, demand slow, trend easier, supply ample, bulk $58.

Kansas City: Demand slow; trend steady to easy with competition from other producing markets; supply adequate; dehydrated alfalfa with 17% protein and 100,000 units vitamin A guaranteed on arrival: reground pellets $55, bulk; pellets $53@54, bulk; meal with 18% protein and 125,000 units vitamin A $59, bulk; meal with 20% protein and 150,000 units A $65, bulk; suncured alfalfa demand is light with supplies ample and trend steady; 13% protein pellets $35@35.50, bulk; No. 1 ¼-in. $38.50 @39, No. 2 ¼-in. $36.50, sacked.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $45, delivered, truck loads, sacked; 136,000 A unit dehydrated $68, delivered, truck loads, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $63, pellets.

Ft. Worth: Demand fair; supply sufficient; sacked: dehydrated, 17%, 100,000 A $67.80@68.80 rail, $67 truck; suncured 13% ¼-in. grind No. 1 $48.50@49.50, truck or rail.

Chicago: Demand and supply fair; trend steady; 17% protein dehydrated, with 100,000 units vitamin A guaranteed $60.50@ 61.50; 13% suncured $41.50@43.50.

Minneapolis: Demand slow; supply ample; trend steady; 17% dehydrated, 100,000 units vitamin A reground pellets $58@59, oiled reground pellets $60@61; sacked $4 more.

Los Angeles: Demand steady; trend firm; supply tight; dehydrated meal, 17% protein, 100,000 A $53; dehydrated pellet meal, 17% protein, 100,000 A $55; suncured meal, 15% protein $48@49; suncured crumbles, 15% protein $50@51.

Buffalo: Demand and supply fair; trend steady; $73.50, sacked, Boston.

ANIMAL FAT (STABILIZED)

San Francisco: Demand fair; supply ample; bleachable fancy 6¼¢ lb.; yellow grease 5¢ lb.

Louisville: Demand slow; trend steady; supply good; bleachable white 5¾¢ lb., white tallow 6¼¢ lb., yellow grease 5¾¢ lb., all in tanks.

Boston: Demand slow; supply excellent; tallow 6¼¢ lb.; yellow grease 5¢ lb.

Ogden: Supply average; $5.50 cwt.

New Orleans: Demand fair; trend easy; supply adequate; 6@6¼¢ lb., tank cars.

Ft. Worth: Demand fair; supply moderate; prime tallow, tank cars 5¾¢ lb., drums 8¼¢ lb., f.o.b. north Texas packing plants with returnable drums.

Atlanta: Demand good; trend steady; supply limited; 5¢ lb., f.o.b. Georgia and Alabama producing mills.

Chicago: Demand fair; trend irregular; supply good; bleachable fancy tallow, tank truck or car lots $5.75 cwt.; yellow grease $5.25 cwt.

Kansas City: Demand slow; trend steady; supply ample; prime tallow 5¼¢ lb., tank cars.

St. Paul: Demand good; supply ample; trend downward; off ¼¢ to 5½¢ lb., f.o.b. producer's plant.

BARLEY FEED

San Francisco: Demand fair; supply ample; rolled $61, ground $60, both sacked.

Portland: Demand good; supply ample; trend unchanged; rolled $53, ground $51.

New Orleans: Demand slow; supply ample; trend unchanged; $51@52, sacked.

Philadelphia: Demand slow; supply fair; $42.

Ogden: Supply normal; rolled $47@52; whole barley $42@47.

Boston: Demand poor; supply ample; $41.

Denver: Demand good; trend firm; supply ample; rolled $2.05 cwt.

Baltimore: Demand good; supply fair; trend unchanged; $47.50, sacked.

Chicago: Demand fair; trend steady; supply ample; $37, sacked.

Los Angeles: Demand slow; trend easier; supply adequate; standard rolled $2.97 cwt., standard ground $2.97 cwt., both sacked.

BENTONITE (SODIUM)

Denver: Demand fair; trend steady; supply ample; $24.50, f.o.b. Denver.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 80 granular $31.50; less than carlots $40; 200 mesh fine $31; less than carlots $40.

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

BLOOD FLOUR

Louisville: Demand slow; trend steady; supply light; $82.50@87.50, sacked.

BLOOD MEAL

Portland: Demand steady; supply ample; trend unchanged; $112.

Ogden: Supply normal; $87.50 ton in 100 lb. bags, f.o.b. Ogden.

New Orleans: Demand dull; trend steady; supply ample; $90@95, sacked.

Omaha: Demand fair; trend strong; supply ample; 80% $100, sacked, Omaha.

San Francisco: Demand fair; supply ample; $6 a unit of ammonia.

Louisville: Demand slow; trend steady; supply good; $82.50@87.50, sacked.

Chicago: Demand fair; supply ample; trend unchanged; 80% protein $115, sacked.

Los Angeles: Demand fair; trend unchanged; supply adequate; $5.50 a unit of ammonia, sacked.

BONE MEAL (STEAMED)

Cincinnati: Demand fair; trend steady; supply ample; $105, sacked, Cincinnati.

San Francisco: Demand good; supply ample; $75, sacked.

Portland: Demand steady; supply ample; trend unchanged; $99.

Boston: Demand steady; supply light; $105, sacked.

Seattle: Demand good; trend firm; supply limited; $90, ex-dock, sacked.

New Orleans: Demand fair; trend easy; supply ample; $100@105, sacked.

Denver: Demand fair; trend steady; supply ample; $109, Denver.

Louisville: Demand slow; trend steady; supply light; $100@106, sacked.

Ft. Worth: Demand good; supply light; $90, sacked, f.o.b. Ft. Worth, local manufacture.

Chicago: Demand fair; trend steady; supply adequate; 100-lb. bags $100.

Los Angeles: Demand slow; trend steady; supply limited; imported $81, 20-ton lots, sacked.

Buffalo: Demand good; trend steady; supply limited; $105, sacked.

BREWERS DRIED GRAINS

St. Louis: Demand good; trend higher; supply tight; $48.

Philadelphia: Demand and supply fair; $56.50.

Boston: Demand fair; supply adequate; 26% bulk $57; 22%, sacked $60.

New Orleans: Demand fair; trend steady; supply good; $50@51, sacked.

San Francisco: Demand fair; supply ample; $54, sacked.

Cincinnati: Demand fair; trend steady; supply somewhat limited; $52.

Louisville: Demand good; trend steady; supply fair; $53, sacked.

Ft. Worth: Demand fair; supply sufficient; 26% protein $61.90, January-February.

Los Angeles: Demand slow; trend firmer; supply adequate; $50.50.

Chicago: Demand fair; trend easier; supply good; $45@45.50.

Buffalo: Demand and supply fair; trend steady; $54.50, Boston.

BREWERS DRIED YEAST

Boston: Demand and supply steady; 10¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

San Francisco: Demand fair; supply good; 10¢ lb.

Cincinnati: Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

Omaha: 10½¢ lb.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Louisville: Demand fair; trend steady; supply good; 10@10½¢ lb., sacked.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9¾@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10½@12¼¢ lb., ton lots.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Los Angeles: Demand fair; trend steady; supply adequate; 10¢ lb., 5-ton lots; 11¢ lb., 1-ton lots; 12¢ lb., less than ton lots, all sacked.

Buffalo: Demand fair; trend steady; supply ample; $9.65 cwt.

BUTTERMILK (CONDENSED)

Boston: Demand and supply steady; 3.95¢ lb.

Ogden: Supply normal; $4.40, 100-lb. drum.

Philadelphia: Demand slow; supply light; $4.25 cwt.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.15@4.25 cwt.

San Francisco: Demand fair; supply good; $5 cwt.

Louisville: Demand dull; trend steady; supply nil; $4.25 cwt., drums included, nominal.

Chicago: Demand quiet; trend steady; supply fair; $3.50@3.75 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100-lb. lots; 4½¢ lb., 500-lb. lots; both in barrels.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.28, flour $19.28.
Buffalo: Crystals $17.11, flour $21.11.
Toledo: Crystals $13.96, flour $12.96.
Boston: Crystals $17.63, flour $11.63.
Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15, 20-ton cars; meal $11.15, 20-ton cars, both sacked.

CHARCOAL

San Francisco: Demand steady; supply ample; $141.

Boston: Demand and supply steady; $110.

Chicago: Demand fair; trend firm; supply fair; 50-lb. multiwalls $110.

Los Angeles: Demand fair; trend unchanged; supply adequate; hardwood poultry: $156, less than ton lots; $144.40, ton lots; both sacked.

COCONUT OIL MEAL

San Francisco: Demand good; supply tight; solvent $69.50.

Seattle: Demand fair; trend firm; supply limited; $86, delivered, truck, sacked.

Portland: Demand slow; supply ample; trend unchanged; $78.50.

Los Angeles: Demand fair; trend unchanged; supply adequate; copra cake $75.

COD LIVER OIL (FORTIFIED)

Boston: Demand slow; supply ample; 600 D, 2,250 A 20½¢; 300 D, 3,000 A 22¢; 300 D, 2,250 A 20¢; 600 D, 1,500 A 19¢; 300 D, 1,500 A 18½¢.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; trend easy; supply fair; $47.50@48, f.o.b. Gulf.

Boston: Demand and supply good; 4¾¢ lb.

New York: Demand poor; supply adequate; $45@50, f.o.b. point of production.

Denver: Demand poor; trend steady; supply ample; dried $147, Denver.

Los Angeles: Demand slow; trend unchanged; supply adequate; 3¢ lb.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $49.90, meal $62.90.
Atlanta: Feed $55.98, meal $69.98.
Birmingham: Feed $54.64, meal $68.54.
Boston: Feed $54.84, meal $68.84.
Chicago: Feed $43, meal $57.
Cleveland: Feed $51.14, meal $65.14.
Denver: Feed $53.51, meal $67.51.
Ft. Worth: Feed $51.96, meal $66.96.
Indianapolis: Feed $48.36, meal $62.36.
Kansas City: Feed $43, meal $57.
Louisville: Feed $50.21, meal $64.21.
New Orleans: Feed $53.20, meal $67.20.
New York: Feed $55.43, meal $68.43.
Norfolk: Feed $53.71, meal $67.71.
Philadelphia: Feed $54.02, meal $68.02.
Pittsburgh: Feed $51.96, meal $65.96.
St. Louis: Feed $43, meal $57.
Decatur, Ill.: Feed $36.75, meal $53.75.

CORN OIL MEAL

Louisville: Demand slow; trend strong; supply normal; $57.45, sacked.

Cincinnati: Demand fair; trend higher; supply adequate; $49.

COTTONSEED OIL MEAL

Kansas City: Demand poor; trend steady; supply adequate; old process for immediate through February $59, Memphis; solvent process immediate through February $58, Memphis.

Cincinnati: Demand poor; trend steady; supply fair; $76.

San Francisco: Demand good; supply tight; 41% $69; 44% $73.

Ogden: Supply average; 41% $75@80.

Denver: Demand fair; trend steady; supply ample; 2% $66.40, Denver.

Wichita: Demand good; supply sufficient; 41% old process $77, sacked.

Seattle: Demand good; trend firm; supply limited; 41% expeller process $82, delivered truck lots.

New Orleans: Demand slow; supply ample; trend steady; $73.50@74.50.

Omaha: Demand slow; trend easy; supply ample; 41% solvent $66.70, delivered Omaha.

Philadelphia: Demand slow; supply fair; $74.

Boston: Demand fair; supply light; $83.

Memphis: Demand slow; trend lower; supply fair; prime 41% protein, old process $59.50; new process, 41% solvent $59.

Portland: Demand slow; supply ample; trend unchanged; $75.

St. Louis: Demand slow; trend steady; supply ample; solvent $62.50, delivered.

Louisville: Demand fair; trend steady; supply ample; old process $67, sacked; new process $66, sacked.

Ft. Worth: Demand fair; supply sufficient; 41% old process $69, immediate; solvent 2% fat added $63.50, January; $62.50, February-March; pellets $2 additional; cottonseed hulls $14@16.

Atlanta: Demand good; trend steady; supply ample; 41% $63, f.o.b. Georgia and Alabama producing mills.

Chicago: Demand and supply fair; trend firm to higher; Memphis basis: hydraulic $59.50, solvent $59.50.

Los Angeles: Demand fair; trend unchanged; supply adequate; $70@72.

Buffalo: Demand and supply fair; trend steady; $83, sacked, Boston.

CURACAO PHOSPHATE

New York: Supply adequate; $46, f.o.b. point of shipment.

D ACTIVATED ANIMAL STEROL (POWDERED)

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9½¢ lb.; 3,000 11½¢ lb.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $67.07, f.o.b. Tupelo in 100-lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%; maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100-lb. multiwall bags, $1 less in bulk.

Coronet, Fla.: Carload, bagged $66.25 and bulk $53.25; truck load, bagged $67 and bulk $64, f.o.b. Coronet, Fla.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston; 100-lb. multiwall bags $71.35, bulk.

Cincinnati: 18% phosphorus $81.02; 14% phosphorus $71.03, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Portland: Demand slow; supply ample; trend unchanged; $112.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices: for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100-lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100-lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Carload and truckload, bagged $80.50, bulk $77.50, f.o.b. Texas City, Texas.

Trenton, Mich.: 18½% P $83, bulk, boxcar/hopper car; $86, bagged, in carloads or truckloads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.65, bagged in carloads or truckloads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Denver: Demand fair; trend steady; supply ample; $95.80, f.o.b. Denver.

Cincinnati: 18½% phosphorus $92.15, f.o.b. Cincinnati.

DISTILLERS DRIED GRAINS

Philadelphia: Demand dull; supply light; $67.

Seattle: Demand good; trend firm; supply limited; $68.50, delivered, truck lots, sacked.

Louisville: Demand good; trend ample; supply fair; bourbon grains: light $58, dark $60, solubles $77, all sacked.

San Francisco: Demand fair; supply ample; solubles $85, sacked.

Boston: Demand fair; supply light; January delivery $64.

Cincinnati: Demand poor; trend steady; supply adequate; $53@54.

Buffalo: Demand fair; trend steady; supply fair to poor; $65, Boston.

DRIED BEET PULP

Denver: Demand excellent; trend very strong; supply nil; $32.50, bulk, Colorado factories; $34.50 pellets.

Boston: Demand slow; supply ample; $51, sacked.
Portland: Demand good; supply ample; trend unchanged; $56.40.
New York: Demand fair; supply adequate; $53, f.o.b. Boston rate point.
Ogden: Supply normal; $41@46.
Seattle: Demand good; trend firm; supply limited; $52, delivered carlots, sacked.
New Orleans: Demand fair; trend unchanged; supply adequate; $51@52, sacked, carlots.
San Francisco: Demand good; supply fair; $45.20.
Ft. Worth: Demand slow; supply sufficient; 50 lb. papers $55.70, January-June, delivered Ft. Worth.
Atlanta: Demand practically nil; trend steady; supply ample; dried $57.75, sacked, delivered.
Los Angeles: Demand fair; trend unchanged; supply adequate; $47.40@49.40.
Buffalo: Demand and supply fair; trend steady to higher; $53, sacked, Boston.

DRIED BUTTERMILK

Chicago: Demand slow; supply fair; trend unchanged; medium acid $13.50 cwt., nominal.
New Orleans: Demand fair; trend steady; supply ample; $12@13 cwt., sacked.
Boston: Demand good; supply short; 14¢ lb.
Ogden: Supply average; $17.25 cwt.
San Francisco: Demand fair; supply ample; 11½¢ lb.
Louisville: Demand slow; trend steady; supply ample; $13.50@14.50 cwt., sacked.
Los Angeles: Demand slow; trend unchanged; supply adequate; 13¢ lb., sacked.
Buffalo: Demand good; trend steady; supply limited; $13.75 cwt.

DRIED CITRUS PULP

New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida points, sacked.
Boston: Demand slow; supply ample; $32.50, sacked, f.o.b. Florida.
San Francisco: Demand and supply fair; meal $49.
Atlanta: Demand good; trend steady; supply ample; $30@32.50; meal: demand fair, trend steady, supply limited, $25@27.50, both sacked, f.o.b. Florida producing mills.
Los Angeles: Demand good; trend steady; supply limited; orange pulp $43, lemon pulp $42.
Buffalo: Demand fair; trend steady; supply adequate; $33, sacked, f.o.b. Florida points.

DRIED SKIM MILK

Ogden: Supply normal; $15.15, 100-lb. drum.
Chicago: Demand slow; trend firm; supply fair; $13@13.50 cwt., sacked, nominal.
San Francisco: Demand and supply fair; 13½¢ lb.
Boston: Demand active; supply scarce; 13¢ lb., nominal.
Portland: Demand slow; supply ample; trend unchanged; 12¢ lb.
Philadelphia: Demand slow; supply light; $12.50, sacked.
New Orleans: Demand slow; supply ample; trend unchanged; $13@13.50 cwt., sacked.
Louisville: Demand slow; trend steady; supply light; $13.50@14.50 cwt., sacked.
Cincinnati: Demand fair; trend steady; supply adequate; 12@14¢ lb., sacked.
Minneapolis: No change from last week; supply scarce; demand good; $13.75 cwt., sacked.
Los Angeles: Demand slow; trend unchanged; supply adequate; 15¢ lb., less than ton lots; 14½¢ lb., ton lots; both sacked.
Buffalo: Demand good; trend steady; supply limited; spray $13.85 cwt.

DRIED WHEY

Chicago: Demand quiet; trend steady; supply fair; $5.75@6 cwt., sacked.
Wichita: Demand light; supply ample; $6.50 cwt., sacked.
Portland: Demand slow; supply ample; trend unchanged; $5.80 cwt.
Philadelphia: Demand slow; supply light; $6.50 cwt., sacked.
New Orleans: Demand good; trend easy; supply ample; $6@6.50 cwt., sacked.
San Francisco: Demand steady; supply good; $5.75 cwt.
Boston: Demand and supply steady; 5½¢ lb.
Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.50 cwt., producers' points.
Cincinnati: Demand fair; trend steady; supply adequate; $6.10 cwt., sacked.
Denver: Demand fair; trend steady; supply ample; $6.50 cwt.
Ogden: Supply normal; $6 cwt., sacked.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.
Louisville: Demand slow; trend steady; supply normal; $5.50 cwt., sacked.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6 cwt., sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse Ft. Worth.
Minneapolis: Demand good; supply tight; trend steady; $5.50 cwt.
Los Angeles: Demand slow; trend unchanged; supply adequate; $5.93 cwt., carloads; $6.23 cwt., l.c.l.; both sacked.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply light; $80, sacked, f.o.b. shipping points.
Ft. Worth: Demand fair; supply ample; 85%-87% protein $75, sacked, f.o.b. trucks, north Texas plants.
Salisbury, Md.: Demand spotty; supply ample; $85, f.o.b.
Atlanta: Demand good; trend strong; supply very limited; $77.50@80, f.o.b. Georgia and Alabama producing mills.
Los Angeles: Demand slow; trend unchanged; supply adequate; $1 a unit of protein, sacked.

FISH MEAL

Chicago: Demand quiet; trend steady on meal, easier on scrap; supply plentiful; sacked: menhaden eastern $114@118, nominal and scrap $110@114, nominal; Gulf, meal $114@118, nominal and scrap $110@114, nominal; Canadian herring meal $1.75 asked, a unit of protein.
New York: Demand fair to poor; supply ample; menhaden $110@112, f.o.b. point of production.
Ogden: Supply normal; $1.70 a unit, f.o.b. Coast; 65% $115@117.
Seattle: Demand and supply good; trend strong; $1.85 a unit protein, delivered truck lots, sacked, Canadian production.
Boston: Demand slow; supply good; $120, sacked, f.o.b. Gloucester.
Cincinnati: Demand fair; trend steady; supply adequate; $145.
New Orleans: Demand dull; trend easy; supply ample; menhaden, 60% $127@130; scrap $124@126, both sacked, f.o.b. Gulf.
Portland: Demand good; trend higher; supply ample; $1.75 a unit.
Omaha: Demand fair; trend improving; supply plentiful; 60% menhaden $130, f.o.b. Omaha.
San Francisco: Demand slow; supply ample; $1.70 a unit of protein.
Louisville: Demand dull; trend steady; supply very light; $148, sacked, nominal.
Ft. Worth: Demand fair; supply sufficient; 65% protein $122, sacked, delivered Ft. Worth.
Atlanta: Demand fair; trend weak; supply ample; 60% menhaden $112@115, sacked, south Atlantic and Gulf ports.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, 60% protein $1.80 a unit, sacked.
Minneapolis: Gulf menhaden, supply ample, demand slow, down slightly to $142@145, sacked; 70% herring, supply tight $149@151, sacked, carload lots; 60% blended, supply ample, demand slow, down about $2 to $142@145, sacked.
Buffalo: Demand just fair; trend steady; supply ample; 60% protein, menhaden $130 bulk, $135 sacked.
Denver: Demand fair; trend steady; supply ample; $1.85 a unit of protein, f.o.b. West Coast.

HAY

Wichita: Demand good; supply short for prairie, sufficient for alfalfa; prairie $20@22, alfalfa $28@30.
Ogden: Supply average; $25 in the barn.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 timothy $24@25; No. 1 red clover $26@27; alfalfa clover mixed $27.50; alfalfa, first cutting $32; second cutting $25; wheat or oat straw $18@20.
Seattle: Demand good; trend firm; supply fair; alfalfa, U.S. No. 2 green $41, delivered truck lots, baled.
Philadelphia: Demand slow; supply light; $24@25.
Portland: Demand good; supply ample; trend unchanged; $36.
Boston: Demand and supply steady; No. 2 timothy $40@42.
Denver: Demand and supply fair; trend good; alfalfa baled $32@33, new hay, third cutting.
Louisville: Demand dull; trend steady; supply ample; local hay, any variety, No. 1 $30@32, No. 2 $28@30; straw $20@22.
Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $40@42, No. 2 $38@40; No. 2 prairie $24@26; No. 2 Johnson grass $22@24, delivered Texas common points.
Los Angeles: Supplies very small; demand steady; trend very firm; U.S. No. 1 $39@40; U.S. No. 2 leafy $36@37; U.S. No. 2 green $37@38; U.S. No. 2 $33@35.

HOMINY FEED

St. Louis: Demand slow; trend steady; supply fair; yellow $43.
Seattle: Demand fair; trend firm; supply limited; $54, delivered, carlots, sacked.
Chicago: Demand and supply fair; trend easier; $42.
New Orleans: Demand slow; supply ample; trend steady; $47@48.
Memphis: Demand poor; trend steady; supply ample; white $45, yellow $45.
Boston: Demand slow; supply plentiful; $52.50.
Kansas City: Demand slow; trend steady; supply ample; yellow hominy $35.50, white and mixed $35, both Kansas City.
Louisville: Demand slow; trend steady; supply light; $51, sacked.
Cincinnati: Demand poor; trend steady; supply adequate; $43.
Buffalo: Demand fair to good; trend steady; supply fair; $52, Boston.

LINSEED OIL MEAL

Kansas City: Demand fair; trend easy; supply adequate for demand; solvent meal, immediate through March, $70, Minneapolis; old process meal $76@76.50, Minneapolis.
Portland: Demand slow; supply ample; trend unchanged; $86.
Boston: Demand slow; supply ample; $81.50.
Ft. Worth: Demand slow; supply sufficient; 34% protein, extracted $90, truck.
Wichita: Demand fair; supply sufficient; 34% $90, sacked.
Philadelphia: Demand and supply fair; 34% $88.
Chicago: Demand fair; trend easier; supply ample; Minneapolis basis: solvent $70, expeller $77.50.
Seattle: Demand fair; trend steady; supply limited; 31% protein, California $91, delivered carloads, sacked.
New Orleans: Demand slow; trend easy; supply ample; $90.50@91.50, sacked.
Denver: Demand fair; trend steady; supply fair; $84.30, Denver.
San Francisco: Demand fair; supply ample; $77.
Omaha: Demand slow; trend steady; supply ample; 34% solvent $76.30, bulk; 32% old process $84.30, Omaha.
Louisville: Demand slow; trend steady to strong; supply normal; old process $96.50, new process $88.50, both sacked.
Cincinnati: Demand poor; trend steady; supply adequate; new process $74.50, old process $78, Minneapolis.
Minneapolis: Steady in slow trade; no change; new process $70@70.50, January-March; old process $76.
Los Angeles: Demand slow; trend firmer; supply limited; local production, 31% protein $74, nominal.

LIVER & GLANDULAR MEAL

Omaha: Demand and trend fair; supply ample; 65% $180, sacked, Omaha.

MALT SPROUTS

Chicago: Demand fair; trend steady; supply ample; $32.50.
Boston: Demand and supply limited; $48, sacked.
New Orleans: Demand fair; trend easy; supply ample; $42@43, sacked.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $35, Cincinnati.

MEAT AND BONE MEAL

Los Angeles: Demand steady; trend unchanged; limited offerings; 50% protein $1.65 a unit.
Seattle: Demand good; trend steady; supply ample; 50% protein $80, ex-warehouse, sacked.
New Orleans: Demand slow; trend easy; supply ample; $75@80.
Wichita: Demand good; supply sufficient; 50% $80, sacked, f.o.b. Wichita; 55%, no quotations, no offerings.
Kansas City: Demand good; trend firm; supply ample; 50% $72.50@75, f.o.b. Kansas City plants.
Chicago: Demand fair; trend steady; supply adequate; 50% protein $77.50, sacked.
New York: Demand and supply fair; trend steady; 50% $70, 55% $77.50.
Ogden: Supply normal; $77.50 ton, 50% protein, in 100-lb. bags.
Buffalo: Demand just fair; trend stronger; supply ample; 50% meat scraps $72.50 bulk, $77.50 sacked.
St. Paul: Demand said to be good and steady and supply ample, but increase in prices of raw materials pushed price up

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

$3 since last week to $74@77, sacked.

Cincinnati: Demand good; trend strong; supply short; 50% meat and bone scraps $76, Cincinnati.

Louisville: Demand dull; trend steady; supply good; $80@85, sacked.

St. Louis: Demand good; trend higher; supply tight; $79.

Boston: Demand good; supply fair; $1.20 a protein unit; converted, 50% $72.50, sacked.

Denver: Demand good; trend firm; supply ample; 50% $69.50, sacked, truck lots; $66.50, bulk, ton lots.

Portland: Demand slow; supply ample; trend unchanged; $1.42.

Omaha: Demand good; trend strong; supply ample; $75.

San Francisco: Demand fair; supply ample; $1.55 a unit of protein.

Ft. Worth: Demand fair; supply normal; meat and bone, 50% $72, f.o.b. Ft. Worth.

MILLFEED

Minneapolis: Steady market; demand good; supplies ample; standard midds. $40, sacked; bran $40, sacked; red dog $41, sacked.

Kansas City: Demand for sacked feed good; trend stronger; supply scarce for spot shipment but ample for prompt; bran $37 @37.50, sacked; shorts $37@37.50, sacked; bran $32.50@33, bulk; shorts $34.50@35, bulk; middlings $34@34.50, bulk.

Wichita: Demand fairly good; supply adequate; Kansas City basis: bran $35.25@35.75, shorts $35.25@35.75, sacked.

Ft. Worth: Demand very good; offerings light for immediate shipment; bran $43.50, burlaps $45@45.50; gray shorts $44.50, burlaps $46@46.50; bulk middlings $44, delivered Texas common points.

Chicago: During the latter part of the preceding week and the first part of the current one demand for millfeeds was on the quiet side but since then there has been a moderate pickup and a modest rise in price. However, the latter was not enough to erase all of the setbacks that bran, middlings and red dog all suffered a few days earlier. Compared with a week ago, both bran and standard midds. were down about 50¢ and red dog was showing a full $1 per ton loss. Demand for the red dog was slow, while for bran and middlings, inquiry demand was up a little. Quotations, bulk, Chicago basis: standard bran $38.50, standard midds. $39.50, red dog $41.50.

St. Louis: Demand good; trend firm; supply light; bran $37, middlings $39.

Cincinnati: Demand fair; trend steady; supply adequate; bran $48.50, middlings $49.50.

Omaha: Demand slow; trend easy; supply ample; sacked bran $36, sacked gray shorts $36, bulk standard midds. $34, all Omaha.

Boston: Demand slow; supply adequate; bran $48, middlings $49.

Buffalo: Millfeed sales were slow last week, but there was a flurry of demand on Jan. 5 and 6. Bran was in better demand than middlings and its nearby shipping position was tighter than middlings. Most of the activity came from the country trade, which bought on a hand-to-mouth basis. Medium and large mixers ran on their inventories. The sacked differential on bran and middlings widened out to $5 from $4.50. Bulk bran and middlings ended off 50¢, sacked bran and middlings held unchanged. Red dog's shipping position firmed and bulk red dog was up 50¢ and sacked held steady. Quotations Jan. 6: bulk bran $40, sacked $45; bulk middlings $40.50, sacked $45.50; bulk red dog $43@44, sacked $48.

Philadelphia: Demand slow; trend spotty; supply fair; bran $53, standard midds. $54, red dog $54.

New Orleans: Demand good; trend easy; supply ample; bran $49.50@50.25, shorts $49.50@50.25, sacked; bran $47@47.75, shorts $48@48.75, middlings $48@48.75, bulk.

Louisville: Demand fair; trend easy; supply good; bran $46.60, mixed feed $47.10, shorts $46.60, middlings $46.60, all sacked.

Memphis: Demand fair to poor; trend steady; supply ample; wheat bran $38.70, gray shorts $40.20, standard midds. $39.20.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $38, middlings $43; to Denver: red bran and mill run $45, middlings $50; to California: red bran and mill run $46.50, middlings $50.50, f.o.b. San Francisco and Los Angeles.

Denver: Demand improved; trend steady to firmer; supply adequate; shorts $38.75, bran $38.75, mill run $38.75.

Seattle: Demand fair; trend firm; supply good; $38, delivered, common transit points, carlots.

Portland: Demand good; supply ample; trend higher; $37.

San Francisco: Demand slow; supply ample millfeed $41.50, red bran $46.50.

Los Angeles: Standard mill run $43, improved demand, firmer trend, smaller offerings; red bran $50@51, slow demand, weaker trend, increased offerings.

MINERAL FEED

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Portland: Demand slow; supply ample; trend unchanged; $42.

Denver: Demand fair; trend steady; supply ample; $100.

Ogden: Supply average; $113 ton in 50-lb. blocks; $103 ton, granular, 50-lb. bags.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Wichita: Demand heavy; supply adequate; all-purpose with iodine, 50-lb. blocks $97.50; 100-lb. bags $92.50, f.o.b. plant.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse, sacked; all-purpose mineral $55, ex-warehouse, sacked.

Ft. Worth: Demand fair; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus 6% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).

MOLASSES

St. Louis: Demand slow; trend steady; supply ample; 10¢ gal., tank car, New Orleans.

Memphis: Demand poor to excellent; trend steady; supply ample; blackstrap 10¢ gal., tank car, f.o.b. New Orleans; $26 ton, delivered Memphis, truck.

Buffalo: Demand fair to good; trend steady; supply adequate; 16½¢ gal., f.o.b. Albany.

Los Angeles: Demand good; trend unchanged; supply ample; $20, f.o.b. tank cars; $20.25, f.o.b. tank trucks.

Minneapolis: Demand good; supply adequate; trend steady; $31, tank truck, delivered.

Kansas City: Demand slow; trend steady; supply ample; 10¢ gal., New Orleans.

New York: Demand fair; supply adequate; blackstrap 16½¢ gal., tank cars or trucks, f.o.b. Albany.

Seattle: Demand fair; trend easy; supply good; $20.25, f.o.b. Seattle, tank truck lots.

New Orleans: Demand good; supply ample; trend steady; 10¢ gal., tank cars and trucks; 600-lb. customers' drums $7.16.

San Francisco: Demand and supply good; $20 ton, f.o.b. cars, Richmond, Cal.

Cincinnati: Demand fair; trend steady; supply adequate; 10¢ gal., New Orleans.

Boston: Demand fair; supply plentiful; 18½¢ gal., tank cars.

Denver: Demand fair; trend steady; supply ample; 10¢ gal., New Orleans; $17.10 ton, New Orleans; $20 ton, West Coast.

Louisville: Demand fair; trend steady; supply normal; 10¢ gal., tank car lots, f.o.b. Gulf ports.

Ft. Worth: Demand good; supply sufficient; blackstrap 11¼¢ gal., f.o.b. Houston; delivered Ft. Worth truck, $25.94, seller's market price on date of shipment.

Atlanta: Demand fair; trend steady; supply good; citrus $15@17, f.o.b. Florida producing mills.

NIACIN

New York: $6 kilo, 10-kilo lots; $6.20 kilo, 5- and 2½-kilo lots; $6.30 kilo, 1-kilo lots, freight prepaid or paid to destination.

OAT PRODUCTS

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $20.65; pulverized white oats $51.60; rolled oats $77.

Seattle: Demand good; trend steady; supply fair; $55, delivered truck lots, 38 lb. or better.

Chicago: Demand good; trend higher; supply fair; reground oat feed $24; No. 1 fine ground feeding oatmeal $77; feeding rolled oats $78.25@80.50.

Boston: Demand and supply fair; white pulverized, sacked $59; reground oat feed, sacked $31@32.

Memphis: Demand poor; trend steady to higher; supply light; 3½% protein, reground oat feed $30.75.

Philadelphia: Trend unsettled; pulverized white, demand slow, supply fair $53; domestic, demand slow, supply light $32; Canadian oat feed, demand slow, supply very light $36.50, sacked, nominal.

Portland: Demand slow; supply ample; trend unchanged; rolled $51, ground $60, cleaned $63.

Minneapolis: Supplies tight; demand good; market generally stronger; feeding rolled steady at $83, feeding oatmeal up 15 to $74; pulverized down 50¢ to $47; reground oat feed up $1 to $24; all sacked prices.

Los Angeles: Demand slow; trend steady; supply limited; local production, pulverized $66, sacked.

Louisville: Demand fair; trend steady; supply ample; reground oat feed $30.85, rolled $37.30, feeding $79.80, pulverized white $53.80, crimped white $70.80, all sacked.

OYSTER SHELL

Boston: Demand and supply steady; in paper $26.05.

Los Angeles: Demand slow; trend unchanged; supply ample; $14.80, sacked.

New Orleans: Demand and supply good; trend steady; $24@25.50, papers.

Seattle: Demand and trend steady; supply good; eastern $36, delivered, carlots, sacked.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Portland: Demand slow; supply ample; trend unchanged; western $31, eastern $35, granite grits $25, shell flour $21.

Louisville: Demand good; trend steady; supply normal; in paper: 80-lb. sacks $23.45, 50-lb. sacks $23.70, 25-lb. sacks $25.95.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45, sacked.

PEANUT OIL MEAL

Atlanta: Demand fair; trend weak; supply limited; 45% $59, solvent; $63 expeller processed, f.o.b. Georgia and Alabama producing mills.

PEAT MOSS

Los Angeles: Demand slow; trend unchanged; supply adequate; Canadian 5.6 cu. ft. bales $3.65.

Chicago: Demand fair; trend steady; supply ample; standard 7⅛ cu. ft. bales $3.80.

San Francisco: Demand and supply fair; $3.65 a bale.

Portland: Demand slow; supply ample; trend unchanged; $3.30 a bale.

Seattle: Demand and supply good; trend firm; $2.80 a bale, delivered, truck lots.

New York: Demand and supply fair; Canadian 7 cu. ft. bale, veneer wrapped $3.32; German 7½ cu. ft. bale $3, f.o.b. pier.

Philadelphia: No demand; no supply; $2.99 a bale, f.o.b. pier, nominal.

Boston: Demand and supply steady; $3.15 a bale in carlots.

POTASSIUM IODIDE (U.S.P.)

Chittenango, N.Y. Demand good; trend firm; supply ample; standard blends, 90% KI 10% stearate or carbonate mixture, 100 lb. drums $1.32 lb.; 200 lb. and up $1.30 lb., all delivered..

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Atlanta: Demand good; trend strong; supply very limited; meal $77.50@80, f.o.b. Georgia and Alabama producing mills.

Los Angeles: Demand good; trend steady; supply limited; $1.45 a unit of protein.

Boston: Demand good; supply spotty; $72@73, sacked.

Ft. Worth: Demand good; supply very scarce; 55% protein $82.50@85, sacked, f.o.b. north Texas plants.

Salisbury, Md.: Demand very good; supply limited; meal $88, f.o.b.

RIBOFLAVIN

New York: U.S.P. grade $36 kilo in 5-kilo container; $40 kilo in mixed feed supplements, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

RICE BY-PRODUCTS

Atlanta: Demand fair; trend steady; supply limited; bran $48, sacked, delivered.

Los Angeles: Demand slow; trend unchanged; supply very limited; California production, high fat content, bran $55, sacked.

San Francisco: Demand good; supply ample; bran $45; polished $49.

Ft. Worth: Demand slow; supply very limited; rice bran $36@37, nominal, f.o.b. south Texas rice mills; hulls $3.50, sacked, f.o.b. mills.

SCREENINGS

Cincinnati: Demand fair; trend steady; supply adequate; grain cleanings $25, delivered.

Chicago: Demand slightly improved; trend higher; supply fair; ground grain screenings $36.50; Canadian $29.40.

Buffalo: Demand good; trend higher; supply poor; ground, sacked $42, New York; unground, bulk $36, nominal.

Minneapolis: No change in market from last week; demand fair; supply light; Canadian $25, lights $12@20, mediums $21@29, heavies $30@40; flax screenings, basis 15% $48.

Ft. Worth: Demand good; supply extremely limited; ground mixed grain $28.50 @30.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

(Sacked)

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Los Angeles: Demand steady; trend easier; supply ample; milo $2.17½ cwt.

Ogden: Supply normal; $42@43.

Seattle: Demand and supply good; trend steady; milo $46.50, delivered, carlots.

Ft. Worth: Demand fair; supply sufficient; No. 2 yellow milo $1.99@2.01, delivered Texas common points.

SOYBEAN OIL MEAL

Wichita: Demand good for sacked, fair for bulk; supply ample; 44% $70, 50% $78, sacked; 44% $67, 50% $75, bulk, f.o.b. Wichita.

Atlanta: Demand good; trend strong; supply ample; 44% $67@68, delivered.

Los Angeles: Demand fair; trend firmer; supply ample; $79.90@80.40.

Minneapolis: Slightly easier for shipment into this area; off 50¢ to $51, Decatur.

Seattle: Demand fair; trend firm; supply ample; $84, delivered, carlots.

New Orleans: Demand slow; supply ample; trend steady; $69@69.50.

Philadelphia: Demand and supply fair; 44% $58, Decatur.

Chicago: January and March futures edged higher, but demand for cash bean meal saw a comparatively inactive market. Quotations: Decatur basis, 44% protein, unrestricted billing $60@61 and eastern restricted $57; 50% protein, unrestricted billing $65@66 and eastern restricted $61@61.50.

Ogden: Supply normal; $77@82.

Boston: Demand fair; supply ample; 44% $57, 50% $61.50, both f.o.b. Decatur.

Omaha: Demand fair; trend steady; supply ample; 44% $62.10, delivered Omaha.

St. Louis: Demand fair; trend steady; supply ample; 44% $63, delivered.

San Francisco: Demand fair; supply ample; $59.40.

Memphis: Demand slow; trend steady; supply good; prime 44% solvent $61, f.o.b. Memphis.

Denver: Demand poor; trend steady; supply tight; $72, Denver.

Portland: Demand slow; trend easy; supply ample; $52.50, f.o.b. Decatur.

Kansas City: Demand fair; trend steady; supply adequate; immediate shipment $56.50, January shipment $57, Decatur.

Ft. Worth: Demand improving; supply sufficient; 44% $67.60@70.90, January-March; 50% protein $74.80@76.50, January-March, depending on origin; trucks: 44% $68@69, 50% protein $75@76, prompt.

Louisville: Demand fair; trend easy; supply normal; $69.20, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $60@61, Decatur.

TANKAGE

St. Louis: Demand good; trend higher; supply tight; $79.

Cincinnati: Demand good; trend steady; supply fair; 60% digester $79, Cincinnati.

New Orleans: Demand fair; trend easy; supply light; $82@84.50.

Omaha: Demand good; trend strong; supply ample; $75.

Kansas City: Demand good; trend firm; supply ample; 60% digester $72.50, f.o.b. Kansas City plants.

St. Paul: Demand fair; supply ample; no change from last week; $71@74, sacked.

Chicago: Demand good; trend steady; supply ample; 60% protein $77.50, sacked.

Wichita: Demand good; supply sufficient; 60% $80, sacked, f.o.b. plant.

Louisville: Demand slow; trend steady; supply good; 60% protein $80@85, sacked.

Ft. Worth: Demand fair; supply light; 60% digester $74, Ft. Worth.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; offerings limited for nearby shipment; 4¾¢ lb., nominal, f.o.b. north Texas.

Broiler Prices Paid On Farm Average 18.30c in Delmarva

SALISBURY, MD.—Broiler growers last week were enjoying a good price. In Delmarva the average price paid on the farm was 18.30¢ lb.—slightly above the 18.22¢ the previous week, and much improved over the 16.05¢ average a year ago.

The recent demand for broilers has torn up the orderly system of selling broilers at nine weeks of age. Chick replacements and egg settings in Delmarva also have been knocked out of balance.

Marketings last week totaled 2,304,000 broilers—41% above the previous week but 12% below the corresponding week of 1959. Marketings were only 66% of the number of broiler chicks started nine weeks earlier.

In December the average price was 18.5¢, compared with 15.3¢ in December, 1958—an increase of 21%. December feed prices fell from an average of $4.90 in 1958 to $4.60 this year—a 6% drop. The average price paid for chicks was $11.50 per

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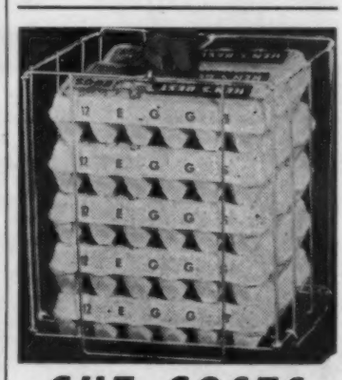

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100, compared with $12 a year ago—4% cheaper.

Nationwide, for 22 important broiler producing states, the total chick placements last week were 31,169,000. This was 21% above the previous week but 2% below the corresponding week a year ago. Increases were reported for 21 states compared with the previous week, with largest increases reported in Georgia, North Carolina, Arkansas, Virginia and Mississippi.

Hatcherymen in the 22 states reported an egg set of 44,324,000 during the week ending Jan. 2. This was 2% above the previous week and 6% above the corresponding week a year ago. Settings were up from the previous week in 14 of the 22 reporting states. The sharpest increases were reported in Georgia, North Carolina, California and Washington.

NTF MEETING

(Continued from page 1)

eggs that might otherwise not be used and through other means.

Some noted, too, that while there was the big price spurt at the end of the year, most growers had already sold their birds and even with the late-season climb some of the large operators still did not have a very high average price for '59.

Some persons felt that there still might be an increase of as much as 5% in the hatch this year, while others looked for little or no gain in view of the reports on intentions to hold breeder hens, sale of breeding birds, etc. There were forecasts that early birds would bring the best prices in 1960.

Other comments included the observation that the 1959 price situation would bring an increase in heavy turkeys, resulting in a gain in meat tonnage beyond the output indicated by turkey numbers alone.

Meanwhile, there appeared to be little doubt about the current scramble to line up hatching eggs and poults. Some feed men said it was likely that some growers and firms were seeking to expand turkey operations more than originally planned.

Part of the convention program was devoted to turkey merchandising and advertising, and particular attention was given to the NTF program aimed at creating more buyers, exploiting new methods of serving turkey and developing year-around consumption. The special nutritional values of turkey meat, including higher protein, also were re-emphasized.

In relation to industry marketing problems, it may be noted that the federation re-endorsed its stand in favor of a national enabling act. (Also see comments in president's talk below.)

Another resolution urged continued efforts to promote turkey exports, and one of the speakers, David L. Hume of the U.S. Department of Agriculture predicted that turkey exports will take on more importance in the years ahead.

Other resolutions asked more uniform inspection of turkeys by USDA and inclusion of turkeys as an integral part of meat purchases under the school lunch program. The federation approved tentative new dressed turkey grading standards published by USDA.

Future Developments

Talks on the convention program covered several aspects of likely future developments in the turkey industry. For example, there were a number of predictions that the trend would continue to be towards large units, with low margin per bird, putting particular emphasis on efficiency in management and feeding. And the program included a number of discussions dealing with turkey growing and breeding operations and disease control.

Predictions also were made that contract or integrated systems would continue to grow. In connection with contracting, some feed men observed that the contracting system of the type used in other areas is being instituted in some midwestern areas where conventional financing of growers has been the more general practice.

The north central region has become the dominant turkey production area, and one speaker said that this region likely would continue to be the principal turkey area. However, there also was a forecast that the industry would gradually tend to move more into southern, warmer areas.

OFFICERS ELECTED—C. N. Thurnbeck, veteran turkeyman from Forest Lake, Minn., was named president of the National Turkey Federation.

Mr. Thurnbeck, who held the post of first vice president during 1959, replaced Walter Schwedler, Portland, Ore.

Chosen first vice president of the federation was Carl Stout, Richland, Mo., with Morris Smith, Ellicott City, Md., second vice president; Robert McPherrin, Riverside, Cal., third vice president, and Ray Thompson, Ellsworth, Iowa, fourth vice president.

In addition to the NTF officers, the executive committee for the year ahead includes Mr. Schwedler; Raymond Higgins, Hot Springs, Ark., and William D. Wampler, Harrisonburg, Va. M. C. Small, Mt. Morris, Ill., is the federation's executive secretary-treasurer.

TALKING TURKEY—The long-time turkey industry leader, Dr. W. A. Billings, tossed a little cold water on the "air of optimism or subdued enthusiasm" which he said prevailed at the convention.

"Nine out of 10 growers didn't participate in the Christmas price bonanza," said Dr. Billings, formerly at the University of Minnesota and now living at St. Petersburg, Fla. "Most birds were out of the hands of the growers. I don't see the reason for the great enthusiasm.

"People say they can't get poults or eggs. The thing is that not all can get all they want now. They may not be able to get them now, but they will get them out of the bullrushes somewhere later."

Dr. Billings warned that if the 1960 turkey crop increases as some have predicted, the price next season will be "a couple of cents" less than in the past season.

"I see no reason for feeling this will be a terrific year," he declared.

Also receiving considerable attention in Dr. Billings' talk was the need for a small turkey, "the type of package that consumers will buy in the months after the holidays."

For most persons, he said, the current practice is to buy a large turkey at holiday time and then "get sick of turkey" while they eat the left-overs and not buy another turkey for a year.

"The industry should develop and offer a small package that people will eat and not get sick of and not have to pay $6 to $9 for," Dr. Billings continued. "However, I can't see much future in cutting up toms and selling segments. Some people will buy turkey parts, but the main problem is to do something about getting a whole bird that people will not get sick of.

"There will be a place for the big turkey in institutional and restaurant use and in some consumer use, but food habits are changing; people are buying in smaller units.

"I don't care whether this small bird is a Beltsville or what; maybe it hasn't been born yet. But we should offer something that can compete with chicken."

Dr. Billings said that the grower argument against small birds on the basis of low returns per turkey is no longer valid. "From now on," he said, "you won't make more than 50¢ per bird on big turkeys either. Returns of $2, $3 or $4 per bird are a matter for the historical society."

Is the place of the small turkey flock gone? "By and large," said Dr. Billings, "the day of the small flock is gone, but there is a place for the small flock grower if he has guts." He said that "it may be silly, but some people will pay a big premium for turkeys that are not frozen." There probably will continue to be a place for a grower to raise a few thousand turkeys and sell them directly to consumers in a nearby town.

Referring to larger scale commercial production, he quoted a prediction that "anybody who is not satisfied with 50¢ per bird might as well get out now." Dr. Billings said that this is probably more right than wrong.

Commenting on production areas, this elder statesman of the industry predicted that over the long term, the industry will tend to move southward. As margins get lower, climate will become more important, and lower cost housing, etc., in southern areas will become more of an advantage.

Summing up, Dr. Billings made these predictions:

1. The bronze turkey is here to stay until the white bird can be produced as cheaply.
2. The Beltsville will not cut into the bronze production.
3. White feathered birds will increase and eventually take over.
4. A small roaster eventually will become available.
5. In time, turkey fryers will become available and will compete with chicken fryers.
6. Consumption won't be increased by selling necks, etc. What is needed is a whole turkey weighing 4 to 8 lb.

NTF PROGRAM FOR PROGRESS—"The turkey industry has more than doubled the consumption of its product in the past two decades—an accomplishment that cannot be matched by any other farm industry," declared Walter Schwedler, NTF president.

The Portland, Ore., turkeyman emphasized the federation's "Operation S and S" (Success and Survival) that is helping the nation's turkey producers to build and maintain a profitable turkey business.

Mr. Schwedler gave the major credit for the tremendous increase in turkey consumption to the "Eat More Turkey Campaigns" conducted annually by the federation. Each year the organization spends better than $150,000 in promoting the use of turkeys by the nation's housewives, he said.

"Through our research in production, processing and merchandising, we have helped immeasurably to reduce production costs and build better and more profitable markets," he continued.

Legislation was rated by Mr. Schwedler as the federation's most important plan for progress. He underscored the need for favorable congressional action on the National Turkey Marketing Act. This, he said, is a comprehensive and long range program of stabilizing turkey production, while producing the funds for a more intensive consumption promotion program.

He said, "While many of the poultry and farm organizations have been asleep to legislative problems, NTF has been trying to move ahead to solve these problems."

Referring to the National Turkey Marketing Act (enabling act), he said, "Six years ago, while most poultry industry and farm organizations were still trying to solve present day problems with the rusty guns of the past, NTF proposed a new type of agricultural legislation to meet the problems of a modern age."

PRODUCTION EFFICIENCY MAKES THE DIFFERENCE—The producer who expects to stay in business must be able to inject more and more production efficiency into his business, said D. D. Moyer, A. E. Staley Mfg. Co., Decatur, Ill.

This is necessary, Mr. Moyer noted, "to reduce his production costs faster than the reduction in the market price that has been taking place since 1948."

Mr. Moyer pointed out that the production break-through starting in 1949 moved faster than the demand increased during the same period. "The demand for turkey, like other farm products, is relatively inelastic," he noted.

"Management must be looked to to improve production efficiency," Mr. Moyer said. "Profit in the future must be made on a volume production basis with a small profit margin per turkey produced."

Mr. Moyer pointed out six major factors important to consider in good management.

First, he noted long range planning for production efficiency.

"Turkey farms are increasing in volume rapidly," he said. "There is much danger in inefficiencies occurring in adding too much production on one farm. This is likely to result in higher mortality losses, due to the heavy concentration of turkeys."

Brooding and range operation must be separated by allowing sufficient distance between them to avoid a breakdown in controlling disease problems, he added.

Other suggestions he made under long range planning were to put not more than 5,000-10,000 birds on range in one unit and, for those using pole buildings for confinement rearing, that buildings be some distance apart.

He also noted that growers should start with poults that have a high viability and stressed the necessity of good brooding.

Under brooding, he pointed out overcrowding and attempting to maintain low mortality with medication as common mistakes.

Mr. Moyer compared range management and confinement, saying, "Both methods of production will continue." He added, "In areas where good, well-drained range land can be provided, especially where land is relatively cheap, production costs can be reduced."

A fifth factor Mr. Moyer stressed was labor efficiency.

And, the final factor he noted was the importance of not wasting feed.

"Many farms waste it in at least two ways," he said. First, he noted the actual feed waste by over-filling small feeders, especially, and not having large type feeders adjusted properly, and secondly, the feed waste in failure to market birds when they have reached their peak feed efficiency.

"For hens, this is around 20-22 weeks and toms, 24-26 weeks," Mr. Moyer said.

WHO WILL RAISE TOMORROW'S TURKEYS—AND HOW?—The turkey industry is headed for more integration among production aspects and between production and marketing, Dr. Ralph L. Baker, Pennsylvania State University, predicted in a paper read at the convention. (Dr. Baker was unable to attend because of an injury sustained just prior to the convention.) Because of the risks involved and capital limitations, much of the coordination is likely to be done through contractual arrangements, Dr. Baker said.

"Coordination of the various phases of production permits economies, particularly from the standpoint of more nearly full utilization of production facilities and labor," he said. "It permits a greater degree of specialization within the total production picture. Large operations lower the cost per unit of well-trained personnel. They can open up greater possibilities for new product development."

Dr. Baker said that the future of the turkey industry as a whole appears bright, although the usual ups and downs will occur and not all kinds of programs nor all participants in a particular type of program will be successful. Despite sev-

TURKEY QUEEN HELPS—Sharon Braddy, Texas turkey queen, lends a helping hand to Dr. Harold L. Wilcke (left), Ralston Purina Co., St. Louis, chairman of the National Dressed Turkey Show, and D. D. Moyer, A. E. Staley Mfg. Co., Decatur, Ill., show coordinator. The show was held in conjunction with the National Turkey Federation convention and exposition in Minneapolis this week.

eral attempts, turkey has not yet been generally differentiated so that all income segments of the population buy it regularly, but there appears to be a lot of opportunity in this field. However, he said, it will require sizeable expenditures to develop and merchandise turkey parts and specialty foods.

Turkey production data seem to indicate a possible leveling off or decline in turkey production in the far West and in the Northeast, according to Dr. Baker's analysis. A continued increase is implied in the North Central region, particularly in Iowa and Minnesota.

He continued: All of the northeastern states except New Hampshire need to buy more turkey outside the state than are grown within the state. The same deficit position occurs in many of the southern and mountain states. Michigan and Illinois fall into a similar category. On the other hand, California, Oregon, Utah, Minnesota, Iowa, the Dakotas, Arkansas and Virginia ship more turkeys out of the state than are eaten within the state.

While the Pacific Coast states have increased in population relatively more than any other region, the biggest increase in number of people since 1950 has been in the region around the Great Lakes. Among the major regions in the country, population increases have been lowest in the Northeast. However, the Northeast is an area of concentrated population and likely will continue to be a major outlet area for turkeys. It appears that the north central area may become an even more important turkey market.

While a look at the statistics would indicate that the increase in the Minnesota-Iowa area production results from turkey production becoming more land oriented, actually one would find that less and less land is being used per turkey grown in this area. Even when corn is worth only 1¢ lb., 100-bu.-an-acre corn land is an apparently expensive turkey range. Disease control is apparently more difficult in range turkeys, and labor costs per pound of turkey are likely high on range. If these assumptions are true, then the shifts must be the result of factors other than availability of land for ranging turkeys, he said.

Has the shift been due to area economies resulting from large numbers of turkeys grown in the area? Certainly concentrating production in a relatively small area leads to economies and gives the area an advantage over other areas.

However, coordination of production and marketing operations only partially explains the recent increases in the Midwest relative to the rest of the country. Other factors include shipping advantages over California to eastern markets and lower feed costs, he noted.

Dr. Baker asked: "Doesn't this all lead to the conclusion that since the Midwest has a foothold on a strong position relative to the rest of the turkey industry, and as the industry of this area moves closer to a high degree of coordination among all phases of the industry from breeding stock to turkeys and turkey products in retail stores, this foothold is likely to become stronger?"

ARE YOU RUNNING YOUR BUSINESS, OR IS YOUR BUSINESS RUNNING YOU?—Government statistics show that 63% of business failures are due to lack of management experience, and only a small portion of failures can be attributed to lack of knowledge of the field in which the business operates, H. L. Wilson, Jr., president of Pension and Profit-Sharing Co., Minneapolis, told the turkey men.

Management of a business today requires great effort to meet an ever-growing list of government requirements, handling of difficult labor problems and dealing with corporate organization, capital needs and taxation, he said.

"The businessman today must know a great deal more than just 'how to build a better mousetrap' or grow turkeys," he emphasized.

A major challenge of small businesses is attracting exceptional employees and keeping them producing, he continued. Because of high labor costs, ways must be found to motivate employees to increase productivity. This can be accomplished, he said, by improving employee attitudes and morale, and small businesses can compete effectively with larger firms in this area.

Employees want job security, opportunities to advance, regard for them as human beings and a feeling of doing something useful, he said. These desires often are more important than wages in maintaining employee morale.

Mr. Wilson recommended a profit-sharing trust, involving tax planning and deferred income features, as a good vehicle both for improving employee relations and making tax savings.

WHO WILL BREED TOMORROW'S TURKEYS—AND HOW?—Dr. Robert N. Shoffner, poultry department, University of Minnesota, said, "One of the easy predictions is that the turkey will have white plumage and that the dark pinfeathered turkey will be a rare commodity within a few years."

He said this merely involves transferring the white gene to present day bronze turkeys. "The marketing advantages over the bronze bird are considerable," Dr. Shoffner said.

Dr. Shoffner was one of several speakers to participate in a breeder management clinic.

"The commercial turkey of the future will be a well planned and tested cross," he said. "The breeders like a cross since it offers many advantages.

"When pedigree breeding starts, and this will be necessary to make any great strides, it will cost a great deal. The breeder has to have some mechanism to protect his investment. In order to do this, he will find it necessary to 'franchise,' and a cross in general is best suited to this type of operation."

Dr. Shoffner said that "second guessing" is a hazardous occupation, but that at least two phases of selection are going to be important in future planning.

Selection will focus on egg production, fertility and hatchability for genetic improvement, he said. Environment—including light management, nutrition, disease control and artificial insemination techniques—has helped to hold up, if not actually improve, reproduction ability in recent years.

"The second phase," he said, "one which has probably the least problems to solve, is that of growth and size. I do not know what size will be necessary for the market of the future. This might be a 'one-size' bird or there may be a 'two-size' demand, such as a small to medium class and the large tonnage type. The ability to grow rapidly and mature early with a low feed requirement and early market quality is desirable."

Dr. Shoffner said, "The new look is going to be the expanded use of genetic skills which require training and experience to get the most out of a breeding program and to survive in a highly competitive field."

The following are the kinds of operations or people who will be in the turkey breeding business, he said:

1. There will be those who are already in the turkey breeding business, as of now, who will retain technically trained geneticists on their staff or as consultants.

2. There most certainly will be an increase of organizations and individuals who are, or have, skilled geneticists working with chickens, plants, etc., who recognize the opportunities in the turkey breeding field.

3. There are now in the turkey reproductive business hatcherymen and flock owners who have been doing some "fringe" breeding work which will undoubtedly hire or develop men skilled in genetic know-how.

He said that in addition to the breeding know-how and developmental aims, there will be problems of field organization, promotion and distribution. "It is reasonable to suppose that the turkey industry will benefit from the success of those who have been through similar problems in the chicken egg production and broiler breeding business. At least some to the more serious mistakes can be avoided."

TURKEY DISEASE CLINIC—A panel moderated by Dr. B. S. Pomeroy of the University of Minnesota covered various types of turkey diseases and their control.

Dr. H. E. Adler of the University of California discussed the CRD and PPLO problem and presented suggestions on control of egg transmissible diseases.

Dr. F. D. Knippling, Merck & Co., Princeton, Minn., in discussing the blackhead problem, pointed out that drugs can be an aid in control but that growers should not try to substitute compounds for sound management. He also noted that disease problems in the field often present a complex situation.

Dr. Jack Tumlin, McMillen Feed Mills, Decatur, Ind., said that many drugs help reduce mortality from bluecomb but do not eliminate the infection. He said antibiotics help control secondary infections and stimulate appetite. Zinc bacitracin, he said, was the best drug in laboratory tests which he cited; he suggested further field testing. Dr. Tumlin went on to suggest a preventive program including isolation of poults from older birds, cleaning and disinfection, etc.

Dr. Karl Meyer of the University of California said that the turkey industry "is sitting on dynamite" in the problem of ornithosis. He presented data showing some 485 persons have had this disease since 1948, frequently contracting it in turkey processing plants, etc. He cautioned the industry to take all possible precautions in seeing that the disease is diagnosed and in preventing spread to humans.

Dr. Paul Waibel of the University of Minnesota said there are no outstanding answers to questions on internal hemorrhage in turkeys. He cited work on the blood pressure angle in explaining the condition; also there are problems of the blood vessel—weakness and atherosclerosis. If a grower has a problem, he said, the "best bet is to use Serpasil (reserpine), a tranquilizer, to reduce blood pressure." He also made management suggestions.

Regarding the problem of starve-outs in turkey breeders during the holding period, Dr. Waibel said that it is a mistake to let birds get too fat but that nutrition should not be restricted too much. He suggested a "middle ground" approach, and he said it is desirable to use a balanced ration, perhaps balancing oats with a supplement. Infections also can cause starve-outs, it was noted.

The hock disease problem, he went on, can be caused by a deficiency of any one of a number of nutrients needed for development of good hock joints. He also pointed out that nutrient balance is important, and he suggested, for one thing, that the grower not over-feed on calcium. Disease and other factors in this condition also were cited.

ARTIFICIAL INSEMINATION—Artificial insemination of turkeys has gone through two stages of development and is in the third stage at the present time, according to Dr. M. G. McCartney, Ohio Agricultural Experiment Station.

"The first two stages include the development of the techniques and principles of artificial insemination and finally the application of these on a commercial basis by the turkey industry for improvement in fertility," he pointed out.

Recent advances in the third stage of the development of artificial insemination have helped clarify many factors which affect this practice, he said. For instance, it appears that as little as 1/1000 of undiluted semen or 1/200 equivalent of semen diluted 1:1 with saline will provide as good fertility as the larger amounts of semen normally used for inseminating turkeys. The frequency of insemination depends upon the fertility level of a particular strain of turkey, ranging from once weekly to once every three weeks.

Under practical conditions, turkey semen must be used as soon as possible after collection for maximum fertility, Dr. McCartney noted. If semen is to be held even as long as one hour, it should be held at a temperature of about 60° F. Lower temperatures impair fertility, he said.

It is impractical to collect semen more often than on two successive days because of reduced volume. However, daily collection for as many as six successive days does not impair fertility or affect concentration of sperm, Dr. McCartney stated.

Some information is being made available on the chemical composition of turkey seminal fluid which is basic to the development of diluents which can eventually be used to extend and possibly store semen for long periods of time. This problem is not likely to be solved in the near future because of the problem of semen samples being contaminated with micro-organisms and excreta, he said.

MARKETS

(Continued from page 2)

even keel with nothing worthy of any special mention on any of the various types of livestock or poultry feeds.

The corn-hog ratio has seemed inclined to level off, and few, if any, feel that it is at all likely to dip below the 10-bu. mark.

Most mills are operating on a 40-hour week and are keeping well abreast of the day-to-day sales volume. Near-zero, and in some cases, sub-zero temperatures have been experienced and, of course, these will likely be reflected in a broader demand before too long. There have been no changes of moment in price structures.

South Central

During the opening week of 1960, formula feeds have moved at a fairly good rate, better than expected by many in the trade. December was a dull month, with mill running time on a sketchy basis, and it was more or less taken for granted that January would follow along in about the same pattern. But the month has started out very well and mills will run five days, regular shifts and a small backlog of orders will be carried over into the next week.

Mill sales departments express cautious optimism about near term prospects. While there is a fair amount of stock rebuilding going on following the year-end inventory taking, much of the present buying is seen as the result of colder weather that has swept over the area. Frigid temperatures always result in a good increase in feed demand.

Most of the heavier buying consists of hog concentrates, cattle supplements and dairy feeds. There seems to be a larger percentage of wet corn in the area than normal and current feed buying practices are slanted toward utilizing as much of this nonstorable corn as possible.

Ohio Valley

With annual inventory-taking now actively underway in most area feed manufacturing plants, there naturally was but little, if any, inclination to push selling efforts to any great extent this week. Furthermore, the weather to date this year has been only cool instead of seasonably cold, with only occasional snow flurries instead of the blanket of snow that makes indoor feeding necessary.

Despite the unsatisfactory sales volume recorded last year, area manufacturers and ingredient wholesalers are in a decidedly more optimistic frame of mind than they expressed at this time a year earlier. It is the general opinion among them that the anticipated economic booms during coming months will definitely result in increasing demands for all types of formula feeds, despite expected substantial price increases for these feeds.

While prices for cattle and hogs held fairly steady at area stockyards during the past week, the market for poultry and eggs was unsettled, with many processing plants reporting large inventories. But this was to be expected following the holiday rush of business, and both poultry and egg processors expressed the belief that their markets soon will adjust to a more normal movement—especially if there should be zero temperatures to slow down production and deliveries at the farm level.

Mountain States

Formula feed dealers are of the opinion that this week's sales volume has slowed up, compared with the week before. It is also off a little from the same time a year ago.

Range cattle business has made a big dip, but the feed lot business is still holding its own. Dealers feel the price of feeder and slaughter cattle is down, causing feeders to use more hay and silage instead of formula feeds.

Feeders are changing their methods of feeding this winter in order to try and cut down on costs. Range feeders had, in the past, bought enough feed to carry them through the winter.

Most of the demand reported now by formula feed dealers is strictly for feed lot stuff and hardly anything else is being sold.

Pacific Northwest

Formula feed movement was generally good throughout Oregon and Washington during the post-holiday week as temperatures dropped to the season's lowest point and resulted in increased supplemental feeding, according to representative mixers at Portland and Seattle.

Dairy and cattle feeds especially moved in volume while certain poultry mashes showed a slight increase near the period's close.

Feedstuffs listings continued to follow a somewhat mixed trend under moderate trading, which saw buying interest largely confined to nearby positions for principal ingredients. Offerings of certain items remained short of requirements and resulted in price strength, while other feedstuffs were readily available and easily satisfied the narrow demand.

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Warning on Feeding Of Drugs Is Issued

CONCORD, N.H. — Feed dealers, farmers and all others concerned have been advised by George H. Laramie, control supervisor of the New Hampshire State Department of Agriculture, to pay stricter attention to official warnings regarding the feeding of drugs in livestock and poultry rations.

Having in mind the medicated feeds sold throughout New Hampshire, Mr. Laramie declared there is need for more heed to the customary tag warnings that caution users to "discontinue use (so many days) prior to slaughter when intended for human consumption."

Mr. Laramie declared that this warning means exactly what it says and is intended as a precaution against any possibility of meat being contaminated, even with a trace of medication.

"Follow the official tag warning," Mr. Laramie declared, "and there will be little possibility of trouble."

Neglect to do so, he concluded, might result in a "severe jolt such as the recent nation-wide cranberry scare caused by a weed-killing chemical."

FEED BUSINESS SOLD

HUTCHINSON, MINN. — Gordon Klicka of Hutchinson recently bought Richards Hatchery and Feeds and Richards Elevator of Stewart. Mr. Klicka has resigned as a Ralston Purina Co. salesman. W. T. Richards of Stewart formerly owned the businesses.

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